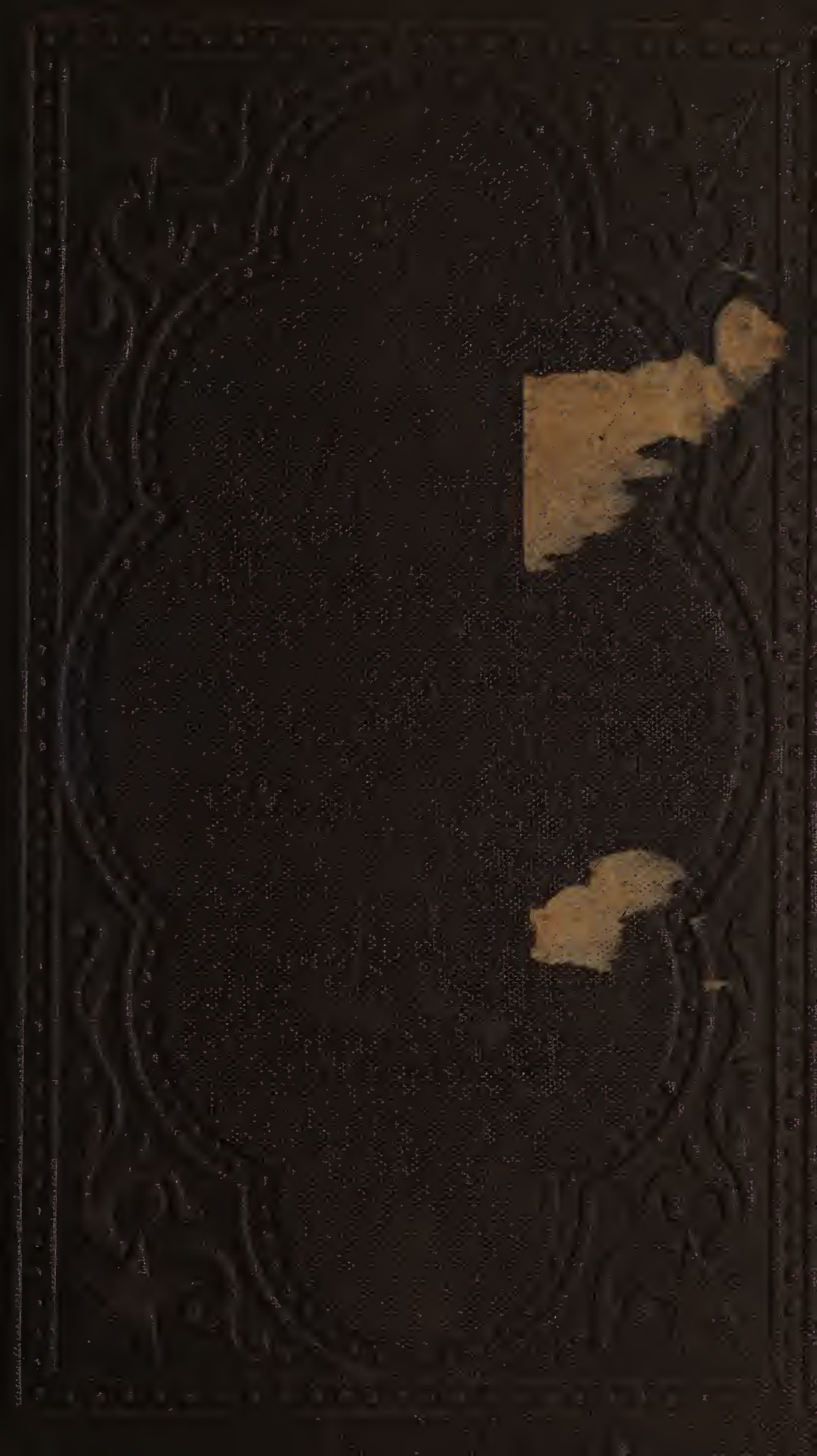

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REPORT

OF THE

COMMISSIONER OF PATENTS

FOR THE YEAR 1856.

ARTS AND MANUFACTURES,

IN THREE VOLUMES.

VOLUME II.

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In the Senate of the United States, *February* 17, 1857.

Resolved, That there be printed, in addition to the usual number, twenty-seven thousand copies of the Annual Report of the Commissioner of Patents on Arts and Manufactures for the year 1856—two thousand copies of which shall be for the use of the Commissioner of Patents, for the purposes of official distribution.

Attest:

ASBURY DICKINS, *Secretary*.

ERRATA IN VOL. 1.

An English patent for an invention for which a provisional protection has been granted is dated, not at the option of the applicant, as stated on page 4, but at the discretion of the law officer to whom the application is referred, or the Lord Chancellor.

Page 187,	1st line	instead of 16,111, read 16,112.
195,	12th line	instead of 14,991, read 14,999.
196,	17th line	instead of 14,598, read 14,589.
205,	39th line	instead of 19,923, read 15,923.
210,	1st line	instead of 16,233, read 16,232.
212,	14th line	instead of 19,977, read 15,977
213,	7th line	instead of 15,192, read 15,193
219,	2d line	instead of 16,198, read 16,197.
219,	14th line	instead of 14,480, read 14,880.
227,	21st line	instead of 14,499, read 15,499.
227,	25th line	instead of 14,406, read 15,406.
231,	16th line	instead of 15,829, read 15,828.
239,	25th line	instead of 16,011, read 16,072.
242,	26th line	instead of 13,763, read 14,763.

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VIII.—MATHEMATICAL INSTRUMENTS, &c.

No. 15,565.—Isaac G. Hubbs.—*Improvement in Machines for Adding Numbers.*—Patented August 19, 1856.

The manner of operating this machine is as follows: The dial C (fig. 2), with the zero indication on it, is placed in line with the number 50 on the cover F; the index H, which is operated upon by a spiral cam G moving in notches of said index, is drawn out so as to have its outer end reach to the inner line of the zero space on the dial. If it is required to add the numbers 24 and 12, the pin in the end of the indicator I is moved and placed in the perforation in the edge of the disk E opposite to number 24 on the cover F, and that disk, and with it the dial C, is rotated by the indicator (to the left) to and over the number 50 on the cover F; the inward motion of the index H, being coincident with it, causes it to follow the spiral line on the dial; the pin in the indicator I is then released, and the indicator carried around to, and the pin placed in, the perforation in the disk E opposite to number 12, and the disks are moved as before; the sum of the two numbers, 36, appearing in line with and at the end of index H.

The inventor says: I do not claim the scale of numbers inserted in the spaces formed by the spiral and radial lines on the dial C, as that is known and used.

But I *claim* the disk E, with its continuous spiral tooth, the rachet index H, and the indicator I, substantially as and for the purposes set forth.

No. 15,359.—Wilderich Joseph von Kammerhuuber.—*Improvement in Centro-lineads.*—Patented July 15, 1856.

This invention relates to an arrangement by which perspective drawings can be executed without the use of large tables or long squares, when the vanishing point lies outside of the limits of the picture. The T-square A B is provided at its head A with two pins 1 1, the edge 2 4 dividing the distance between the two points in equal parts. The arc C of a true circle being fastened to the drawing board, the T-square can be moved along the periphery of said arc by the two pins resting on its edge, and all the lines corresponding to the edge 2 4 will be radial lines of the same circle.

The inventor says: I do not limit myself to two projections provided on one side of the cross piece, as both sides of the same may be pro-

vided with two projections, or their equivalents, whereby only one edge of the blade of my centro-linead is to be used for drawing lines.

But I *claim* the combined T-square and centro-linead, constructed as above described, in connexion with the circular arcs of different diameters and of any suitable material, provided on their ends with pins, or their equivalent, to secure them to the drawing board, when used to guide the centro-linead.

No. 14,645.—Edwin Allen.—*Improvement in Calendar Clocks.*—Patented April 15, 1856.

The nature of this invention will be understood by reference to the patent issued to John Williams, dated September 19, 1854.

The inventor says: I do not claim the lever *n* and its stop-pin 23, nor any other parts described in the patent of John Williams.

But I *claim* the lever *a*, with its pin 4 attached to the wheel *b*, and the eccentric A applied to the lever *n*, in combination with a spring *d*, for the purpose of controlling the operations of the said lever in connexion with the pins 19, 20, 21, in all positions of the clock movement.

No. 15,637.—Edwin Allen.—*Improvement in Calendar Clocks.*—Patented September 2, 1856.

A detailed description of this invention would take up too much space to be given here; the principal features of it will be understood from the claims and engravings.

The inventor says: I do not claim the lever C and stop-pins *d* on the month-wheel, as their equivalents are found in the calendar mechanism of John Williams, patented September 19, 1854.

But I *claim*, 1st. The change-wheel E and year-wheel F, or its equivalent, fitted, as described, to rotate with the month-wheel B, and carrying the leap-year wheel G, occupying such a position on the change-wheel as to represent the month of February, said change-wheel receiving every month one-twelfth part of a complete rotation on its axis, independently of the month-wheel, and the leap-year wheel receiving every year, in addition to its revolution around the axis of the change-wheel, one-fourth of a complete rotation on its own axis, the movement of the change-wheel and leap-year wheel being produced by any means equivalent to those described, and the said wheels combined and operating upon the lever C, substantially and for the purpose described.

2d. The internally-notched ring P on the driving-wheel M, or its equivalent, that transmits motion from the month-wheel to the yearly rotating month-card, combined with the lever Q and its locking-pin *i* and the pin *z* on the month-wheel, the whole operating substantially as described to lock the wheel M, or its equivalent, and through it the month-card, till the time for moving the same, and then unlocking it as long as is required to effect the movement.

No. 14,251.—John Prime.—*Improvement in Ships' Compasses.*—Patented February 12, 1856.

This method of fitting the glass cap C to the box A protects the glass cap from being cracked by the expansion of the bowl. The convex form of the glass cap always allows the water to run off.

Claim.—The method herein described of constructing the cover of compass boxes by inserting the metallic ring B within the rim of the glass C, with a band *d* of India-rubber or other elastic material between them to compensate for their unequal expansion and contraction, substantially as and for the purposes set forth.

No. 15,017.—R. H. Peverly.—*Improvement in Self-Registering Ships' Compasses.*—Patented June 3, 1856.

The strip A is introduced between rollers *b b* and over a bed-plate *c*, with a circular groove *d* to receive the marker *a*, (the marker being connected with the needle pivot d^1 by spring arm e^1); the paper then passes between rollers *e* and *f*. The feed-roller *e* is caused to revolve by gear *g*, connecting it with the time-piece C. The arm *k* has two forked projections, the one of which, as the releasing lever J rises, lifts a lever *l*, and the other fork *z* acts as a stop at certain intervals to the stud *n* of a wheel *o*, which forms one of a series of wheels that, together with a winding-up spring *t*, constitutes an independent clock-gear for operating the hammer D that strikes upon the pointer *a* to effect the register. The movement of the hammer stops when the stud *n* reaches and rests on the fork *z* of the arm *k*, which (when it drops with the periodical dropping of the release lever J) allows, by letting loose the stud *n*, of a further movement of the clock gear till the other stud *s* is again stopped by the ratchet arm *r*. The hammer is thus operated independently, as it were, though in concert with the clock, producing the feed of the marking strip, whereby a certain action of the hammer is insured without retarding the movement of the clock proper C.

From the above it is obvious that, as the ship varies her course, the deviations from the main course will be registered on either side of the centre line of A, while the transverse divisions indicate the intervals of time between the courses steered.

The inventor says: I do not claim as new any of the within described devices, separately considered, and am aware that various electro-magnetic and other instruments have been made to record automatically the indications and periods of such on a clock-fed continuous fillet or strip—this, therefore, as a principle or system of automatic registration, I do not claim; but I *claim* registering permanently and automatically the ship's courses on a continuous strip of paper, or other material, at known or fixed intervals of time, for a part or the whole of the voyage, by means of the continuous clock-feed to the fillet or strip, in combination with the ship's compass and marker, arranged and operating together essentially as set forth.

No. 15,117.—M. F. Bonzano.—*Improvement in Machines for Counting Coin.*—Patented June 17, 1856.

The coins to be counted are thrown into the basin *g*. By the rotation of the spindle *a*, the coins are seized by the toothed wheel *h* and propelled towards the slot *d*. The pieces are prevented from going past it by the projecting end of the slide K, and are thus compelled to enter it, one piece pushing the other along until, arrived at the toothed wheel *b*, and imparting to said wheel a motion upon its axis, corresponding to one tooth for each and every piece, they fall through the opening *l* into the box. The number of teeth in the wheels *e e e* are in such proportions to their respective pinions as to effect the decimal system of numeration, so that the figures pointed to by the hands indicate the number of pieces passed into the box.

Claim.—The manner of passing the pieces in regular order through a slot by means of a tooth wheel, for the purpose of making them aid as a pinion to revolve a wheel connected by other wheels with a registering index.

No. 16,323.—James A. Bazin.—*Improvement in Counting Machines.*—Patented December 23, 1856.

The requisite motion is given to the pawls, figs. 4, 5, 6, 7, by means of crank R, which vibrates in slot h^1 in the plate *b*. As the plate *b* and hub *g* are thus made to vibrate, the pawl 1 engages with each succeeding tooth of the wheel *a*, and the numbers upon this wheel are brought successively into action, they being set out of gear and their pawls depressed by the flanges *d* upon the rings. The first wheel continues to move until the number 9 is brought into action, at which instant the notch *f* in the flange of this wheel is brought opposite to pawl 2, which is permitted to rise and enter a notch in the wheel or ring a^1; and when the plate *b* is again vibrated, the rings *a* and a^1 are moved one notch, and the 0 of the first wheel is brought into action with the 1 of the second wheel, and the 10 is produced; in this way the two wheels move on, producing the consecutive numbers—the three wheels *a* a^1 a^2 to produce the hundreds, four wheels to produce the thousands, &c.

The inventor says: I do not claim operating a series of numbering wheels by a corresponding series of mutually dependent pawls, when the pawls are arranged upon the outside of the wheel; but I *claim* the described arrangement of the numbering wheels, and the parts immediately connected therewith—that is to say, hanging the pawls to the central drum within the rings, and operating them in the manner substantially as set forth.

No. 15,608.—George Gibbs & John W. Gibbs.—*Improvement in Dynamometers.*—Patented August 26, 1856.

To test the amount of power required in the draught of ploughs, &c., one of the ends E^1 of the elliptic spring is attached by a hook to

the clevis on the machine, and the other end of the elliptic spring is connected in a similar manner to the double tree attached to the team. The minor axis of the elliptic will be contracted or extended, according to the power applied to the major axis of the elliptic; and the amount of power will be indicated by the pointers L and P on the dial, by an arrangement as represented in the illustration.

The pointers L and P turn on shaft M, which passes through hole O, and a pin S on pointer L enters a slot R on pointer P. The pointer L, in passing from T to T^1, moves the pointer P P^1 by means of the pin S in slot R; this slot allows the pointer L to vibrate from T^1 to T^2 without moving the pointer P P^2, which thus indicates the precise amount of draught by the dial.

Claim.—The register or pointed P P, which shows the average or mean draught, in combination with the slot R and pin S, or its equivalent, which overcomes the vibrating motion of the pointer L, shown on the dial, substantially as set forth.

No. 14,032.—Charles Robinson & Charles T. Chester.—*Improvement in Automatic Electrical Circuit-Breakers.*—Patented January 1, 1856.

By pushing the knob F to the right, the spring is correspondingly wound up, and, acting on the train, impels the wheels *a* and *b* in the direction of the arrow; at the same moment the spring *e e*, being liberated, bears against lever l^1 and elevates lever *l*, releasing wheel *b*, which immediately commences its revolution. When the revolution of wheel 1 carries the handle G against the spring *e*, the lever will again drop into its position in wheel *b*, and hold the train firmly until its liberation. The relation of the wheel *a*, which may be called the circuit-wheel, to these parts, is shown in fig. 1. *f* and *d* are binding screws for the attachment of wires; *d* is secured into and connects with the frame, and hence with the circuit-wheel. *f* is insulated from the frame by ivory *n*; a slip of brass is attached to *f*, and carries a slip of platina *q*. As the wheel *a* revolves, its points *j j j* are brought into successive contact with the platina slip.

The inventors say: We do not claim the circuit-wheel as a method of breaking and closing electric circuits mechanically; nor do we claim any peculiar use of these interruptions of circuit for ringing or recording signals; nor do we claim the use of clock-work for operating a break-circuit signal-wheel and regulating its motion, as that is not new; nor do we claim the manner of making the break-circuit signal-wheel stop at a point where it shall leave the circuit closed, or at a point where it shall leave it open, since, in the apparatus described in Silliman's Journal, second series, vol. 13, the break-circuit signal-wheel is made to rest at the desired point for leaving the circuit closed by the weight of its crank.

But what we do *claim* as new, and desire to secure by letters patent is, the manner in which the detent of the clock is let down to take effect, viz: by means of the lever G pushing back a spring *e* which previously held the detent in its elevated position.

No. 15,596.—Edward C. Shepard.—*Improvement in Magneto-Electric Machines.*—Patented August 19, 1856.

This apparatus is composed of several permanent magnets N S, with their ends placed in the planes of several vertical circles, and between every two of which circles is mounted a wheel E, having a series of helices of insulated wire fixed on its periphery, so that when the wheel revolves it shall cause the helices to pass between the sides of the ends of the magnets composing the circles for the purpose of creating induced electric currents. All the magnets in each circle must be so arranged that their north and south poles shall follow each other in regular order, and so that in each circle of magnets there shall be a north pole and south pole alternately around it. In the circles of magnets of which this machine is composed, the poles in adjoining circles must follow in reverse order to each other, so that a north pole shall always have a south pole opposite to it, in the circle of magnets on each side of it; or, in other words, every helix must at any given moment pass between and be acted upon by the north pole of the magnet at one end of it, and the south pole of the magnet at the other end of it.

The inventor says: I do not claim the helices, the connecting bands or rings p^1 n^1, the connecting rods, the frotteur plates, or the springs F or G, individually.

But I *claim* the springs F and G, the frotteur plates P, the connecting rods r^1 r^1, and the conducting bands or rings p^1 n^1, when these are combined with helices in sets of four, said helices being united amongst themselves, and by their terminal wires with the rings p^1 n^1, or their mechanical equivalents, so as to collect and aggregate in one current the several currents generated in the said helices when resolved between the magnetic poles, as set forth.

No. 16,175.—James W. Campbell.—*Improvement in Elliptographs.*—Patented December 9, 1856.

By moving the bar E so that two beams D will rotate on the plates B, the pen G on shaft *h* will describe an oval of the same shape as those described by pins *g* on the beams D.

Claim.—Attaching the bar E to the two beams D D of the plates B B, the pen G being secured at the centre of said bar, substantially as described, for the purpose set forth.

No. 14,682.—Maurice Vergnes.—*Improvement in Electro-Magnetic Engines.*—Patented April 15, 1856.

A B C D are four wheels composed of wood, revolving upon a common axle M N, and each including an electro-magnet X Y X^1 Y^1. Each pair communicates with a separate galvanic battery; and whatever be the position of the wheels, the polarization of the magnets remains unaltered. The currents in the two multiplying coils, which latter communicate with separate galvanic batteries, are reversed alternately

by the pole-changing device P, so as to produce a continuous revolution of the wheels.

Claim.—The concurrent action of two or more electro-magnets parallel and with contrary adjacent poles, revolving upon an axle common to both, within a double multiplying coil, arranged or running between and on the outside of the magnets in opposite directions, and acting upon both sides or faces of the magnets.

No. 15,491.—David Munson.—*Improvement in Lightning-Rods.*—Patented August 5, 1856.

This invention consists in providing a lightning rod A with spiral flanges D D for the purpose of increasing the stiffness of the rod and also its conducting power, presenting a greater amount of surface for the fluid to act upon than is the case in ordinary rods of the same diameter.

Claim.—Constructing a tubular lightning-rod with spiral flanges, one of which is left open or divided its entire length for the purpose of admitting the electric current to the inner surface of the rod, to diminish its intensity and mechanical effect, substantially as described.

No. 14,598.—Calvin Carpenter, jr.—*Improvement in Magneto-Electric Machines.*—Patented April 8, 1856.

The pole-changer consists of the ivory ferrule c^1, surrounded by two semi-circular insulated metal segments with cogs, which form a spur-wheel c^2. Two other cog-wheels d d^1 gear into c^2, and answer as a substitute for the springs commonly used. The revolving prism f upon the axis of the insulated cog-wheel d, together with the spring h, serve for rapidly breaking the current.

Claim.—The cut-off consisting of the geared segments and gear wheels or wheel, and thus serving the purpose of springs, and driving a revolving prism, or its equivalent, for rapidly breaking the current, substantially in the manner and for the purpose set forth.

No. 14,857.—Elisha Dexter.—*Self-Counting Measure.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—Supplying the point which marks the extremity of the yard or standard of measure with the pressure knob A, and connecting with it the pointer E, by means of the escapement lever F and the rack C, as a means of pointing out the number of yards measured upon the index.

No. 15,602.—Enoch A. Crandall.—*Improved Instrument for Measuring Distances from a Single Station.*—Patented August 26, 1856.

The nature of this invention will be understood by describing the manner of operating the same. If it is desired to measure the distance between the points *f* and *g*, then the instrument is placed, with the point where the line *a* of the front side of the base meets the vertical plane in which is the axis of the tube B, vertically above the point *f*, and the tube B is sighted to the point *g*. The line *a* of the instrument then forms a base, to which the line *f g* is perpendicular. The tube C is then moved on its pivot *c*, at the end of the line *a*, till it also sights the point *f;* and the angle that is formed with the line *a*, by the line *h* running from *c* to *g* and forming the hypothenuse of the triangle *f c g*, determines the line *f g*. The index E moves with tube C, by means of index-bar D; and the scale *e* e^1 being graduated in distances corresponding to the angle at *c*, the true distance from *f* to *g* is indicated on scale *e* e^1. In measuring long distances, the tube *c* comes nearly parallel with the tube B; and as it approaches to a state of parallelism, the tube C will take a long range along the line *f g* without producing a movement of the index E that is very perceptible to the eye. In such cases the multiplying levers I J K are used, which are provided with indexes *i j k*, working through slots *l m n* in the top plate of the base A, over graduated scales *o* o^1 *p* p^1 *q* q^1.

Claim.—The combination of the stationary telescope B, the movable telescope C, with its index-bar D and index E, and the multiplying levers I J K, with their indexes *i j k* and springs M, and their respective scales *e* e^1 *o* o^1 *p* p^1 and *q* q^1, all arranged as described and for the purpose set forth.

No. 15,040.—Horace L. Hervey.—*Improvement in Parallactic Instruments for Measuring Distances.*—Patented June 3, 1856.

The teeth *o o* on the edge of bar T form a rack which acts upon the pinion on the shaft *u* and turns the index hand *v*, when the bar T and telescope S^1 are traversed, so that the distance they are moved will be indicated by the index hand *v* on the dial D. The tangent-screw *n* is fitted to the stand *p* on the block V, and turns in the nut *q* fastened to the bar *l*, to adjust the bar and telescope to the angle desired, which will be indicated upon the dial *r* by the projection *t* on the bar *l*, which serves as an index to denote the angle at which the telescope S^1 stands.

The inventor says: I do not claim to have been the first to measure distances by means of a base line within the instrument, several different forms of instruments having long since been contrived for this purpose. In some of these, two telescopes are used at the ends of a fixed or invariable base. In the patented instrument of Wm. Wurdemann, a single telescope is mounted on pivots in such manner as to take two parallel positions at the ends of such a base, and the parallax is measured by a micrometer. Another instrument consists of a single telescope and a pair of mirrors, of which one slides over a variable base, which thus furnishes a scale of distances. I do not, therefore,

claim as new the use of either a fixed or variable base line in the instrument.

But I *claim* combining the traversing or sliding telescope S^1 with the fixed one S, in such a manner as to measure distances by means of a constant angle between them and a variable base.

No. 15,509.—Smith Beers.—*Improvement in Odometers.*—Patented August 12, 1856.

A spiral band P is attached to the inner side of the hub Q of a wheel O. As the wheel makes one revolution, the toothed wheel R, being in gear with the spiral band P, will be turned the distance of one tooth. The flexible shaft T, consisting of the chain U and spring V, connects the toothed wheel R with the arbor C, which, by means of an arrangement of cogged wheels, moves the dials D E and L M, and thus indicates the speed of the wheel O of a vehicle.

The inventor says: I do not claim the use of a simple spiral spring for communicating motion from one shaft to another, forming an angle with it.

But I *claim* the flexible connecting shaft T, composed essentially of a chain U and spiral spring V, or their equivalents, arranged and operating substantially in the manner and for the purpose set forth.

No. 16,003.—Albert Carter.—*Improvement in Odometers.*—Patented November 4, 1856.

This apparatus is attached to the axle of a common vehicle by means of the set-screws E. D is a ring closely fitted between the plates A and collar C, and to it is attached a spring-catch H. As the click-wheel G revolves over the spring-catch H, it is caused to move one notch, and is held by the click T; the motion of the wheel G is transmitted to the gearing, as represented in the engraving, whence motion is communicated to the indicator on the dial.

Claim.—The bearing-ring D, the catch-spring F, and the set-screws E, on which the case containing the movements turn by the action of the carriage-wheel, and produces the result of indicating the distance travelled, in the manner and for the purpose as set forth and described.

No. 15,140.—Joseph Lloyd Martin.—*Improvement in Odometers and Counting Machines.*—Patented June 17, 1856.

The inventor says: I do not claim to be the first inventor of an odometer or machine for measuring distances travelled or traversed by carriages or other vehicles, or steam or sailing vessels, as I am aware that several inventions for this purpose already exist. Neither do I claim to be the inventor of a "tell-tale," as applied to registering the movements of machinery; nor of the calendar clock, as usually made. But all machines of the kind, and for the purpose above named, with

which I am acquainted, differ entirely from mine; one peculiarity of which consists of communicating motion from the first motor to the registering train by means of such a connexion by means of friction, that, while it allow sexcess of motion in the parts and compensates for wear, does not allow the accuracy of indication and registering to be thereby made less exact; this form of construction also produces very accurate results where they are required, without involving the necessity of nice arrangement of other parts, and permits a ready means of application to any machine which has a reciprocating movement. Another peculiarity of my invention consists of the method of operating the train of wheel-work by means of a central axis and cam, which axis is directly connected with that of the carriage-wheel, and operates by this direct connexion, and not by means independent of it, insuring thereby sufficient power to move the registering train, and also to overcome the resistance of the frictional clutch upon the ratchet-lever. In constructing these machines, I do not confine myself to the exact forms laid down in the drawings; for it is obvious that the same results may be obtained by means analogous, though not identical, without changing the principles of application or action.

But I do *claim*, specifically, the following parts, combinations and applications:

1st. The attachment of a friction-clutch to the ratchet-lever H, operating against the bar of the connecting-rod G, for producing the requisite motion in the first wheel C, so arranged that any excess of motion in the bar will not produce excess of motion in the wheel; and I claim this, whether in combination with the ordinary train of wheel-work, with a single or double ratchet-pawl, or in combination with the arrangement of wheel-work described.

2d. Though I do not claim operating the count-wheel by a cam or eccentric F placed at its centre, when this is actuated by means independent of the axle of the carriage, and disconnected therefrom, as by the weight and clutch of Julius Thompson, patented October 31, 1854, I do claim the combination of the cam F (whose axis is attached directly to the carriage-axle P) with the connecting-rod G, and frictional-clutch upon the ratchet-lever H.

No. 15,356.—John C. Briggs.—*Improvement in the Mode of Regulating the Conical Pendulum of Time-Keepers.*—Patented July 15, 1856.

The pendulum B, which revolves in a circle, is propelled by a power sufficient to propel it in a circle larger than the one desired. As soon as the pendulum begins to swing in a larger circle than the one required, it comes in contact with the arm A, which can turn on the centre C, and carries the arm with it; and the power necessary to carry the arm A so counteracts the propelling power of the pendulum that it soon takes a smaller circle again, and lets go the arm A.

Claim.—The application of friction to conical or rotary pendulums to keep them revolving very nearly in any desired circle.

No. 16,148.—Henry Neumeyer.—*Improvement in Pentagraphs.*—Patented December 2, 1856.

When a *fac-simile* in size of any figure is to be made, the original is placed on the drawing board D^2, the marker S^2 making the copy as the pointer T^2 is drawn along the lines; in this case, the belt V^3 is slackened by turning the winch U^4, and the traversing rack S must be confined to the sliding-bar R^2, by turning set-screw R^3. When a reduced or enlarged copy is to be made, the belts U^3 and V^3 are set to different points of the conical rollers O and L, and the rack S is permitted to slide in the bar R^2; by these arrangements the drawing board D^2 will be caused to move respectively in such directions during the operation of transferring the drawing that a reduced or enlarged copy will be obtained, according to the position of belts V^3 on their respective pulleys.

Claim.—The upper sliding frame A A A A, in combination with the under stationary frame and casing B B B C C, and the traversing cog-racks E E and uprights F; the slotted traversing bed-plate D D *g g* H H, with the traversing drawing-board or tablet D^2, the compound cog and geared cone pulleys L L M M^2 O O^2 O^7; the compound or double and adjustable rack devices P P P^2 P^3 P^4 Q Q Q, as described.

Also the grooved sliding rack bar R^2 R^2 of the traversing rack S S, with its devices S^2 T^2, when combined with their pinions and cone pulleys, and the traversing carriage A A, as described.

No. 15,183.—Charles R. Iliff.—*Improvement in Plotting-Instruments.*—Patented June 24, 1856.

The nature of this invention will be understood from the claim and the engravings.

Figure 1 represents a plan of the machine.

Figure 2 a front elevation of the trammel stand, the drawing stand being removed.

Figure 3 a vertical section of the instrument in the line *x x*, looking towards the face of the drawing stand.

Figure 4 a front elevation.

The inventor says: I wish it to be understood that I do not claim the trammel, or any of the separate adjustments described, in themselves separately.

But I *claim* the combination of the trammel with the drawing stand, which is provided with the angular and offset adjustments, whereby an instrument of greatly increased capabilities is produced.

No. 15,162.—Thomas Hedgcock.—*Improvement in Reflecting Quadrants.*—Patented June 17, 1856.—England, March 31, 1855.

To determine the sun's altitude by means of this instrument, the vernier A^1 is set so that its 0 coincides with 90 degrees on the arc D,

and the vernier of the index bar B^1, at 0 of the arc E F; in this position, the mirror A and mirror B are at right angles to each other. Then, holding the instrument vertically, as shown in fig. 1, the back turned to the sun, when it is on the meridian, move the detector backward and forward until the image of the sun is reflected on the surface of the water at the horizon line. It remains now to measure the angle formed by the direct with the reflected rays of the sun passing through the operator's eye. For this purpose the index A is moved to bring the scale A^1 in such a position that the direct and reflected images of the sun coincide at the horizon, and the number of degrees and minutes is read on the divided circle D. The detector G and the mirror B must now be parallel; if not, one of the images would be reflected above and the other below. This parallelism is obtained by moving the scale without touching the detector.

There are other modes of using the quadrant in taking altitudes, but the method above described will be sufficient to explain its practical operation.

Claim.—The detector glass G, in combination with the index glass A and horizon glass B, for the purpose of facilitating observations, in the manner herein set forth.

No. 14,396.—R. Eickemeyer.—*Improvement in Parallel Rulers.*—Patented March 11, 1856.

The foot-piece *c* fits easily and slides freely in slot *a* in the base-piece A. When the instrument is laid upon the paper, the pressure of the finger of the draughtsman upon lever d^1 causes the foot-piece *c* to take a firm hold upon the paper and become stationary, making the point *f* or fulcrum of the lever *e* stationary, and causing the said lever *e* to convert the lever d^1 into a link to draw along the ruler. The removal of the finger from lever d^1, and the application of a gentle pressure to the base-piece A, cause the ruler to take a firmer hold upon the surface than the foot-piece does, and will allow the spring *h* to force the foot-piece in the direction in which the ruler has moved till it comes to the end of the slot *a*. Thus, by alternately applying the fingers to the lever d^1 and to the base-piece, the ruler will be intermittently moved along. The cam i^1 serves to graduate the distance between the lines. In moving the ruler by the intermittent depression of lever d^1, the stop piece j^1 is every time brought into contact with finger *l* of arm k^1, which stops the further movement, thus allowing only a certain limited movement of the rule, determined by the position of cam i^1.

Claim.—Providing the ruler with a movable foot-piece *c* and suitable stops, to operate substantially as and for the purpose specified.

No. 16,002.—William A. Burt.—*Instrument called an Equatorial Sextant.*—Patented November 4, 1856.

A detailed description of this invention would take up too much space to be given here. For observation, having set the latitude circle

I to a given latitude, and the declination having been set off on the declination arc by the vernier H on limb M, from its attachment to limb *n*, by removing the set-screw e^5, and the time vernier *v* being moved to the time of observation, will give motion to the revolving sextant I J K L X, and azimuth vernier X^1, and altitude vernier e^6, and thus give the azimuth, altitude, and time when the celestial object is seen in the horizon.

Claim.—Combining with the common sextant equatorial and horizontal movements, substantially as set forth, for the purposes of obtaining latitude, time, azimuth, altitude, and declination, which are read from the instrument without computation.

Combining the limb E, which moves over the face of the hour circle, with the limb *n* by means of the slotted arc, or equivalent thereof, and movable bearing K^2 and vertical spindle S.

Also, combining the latitude circle with the limb *n* by means of the limb E having its centre of motion on the line *m m*, the arc F, and bearing K^2, and vertical spindle S, as set forth.

No. 14,661.—Charles Kirchhof.—*Improvement in Electric Telegraph.*—Patented April 15, 1856.

By the movement of the hand W the stud o^2 is caused to slide the frame Y far enough to insert the arm *d* of the lever *d* d^1 in the notch in the catch c^1, whereby the arm *d* is caused to partake partially of the movement of the armature K K^1, and to be withdrawn from contact with the ivory piece *w* w^1, and to carry the knee-lever past the line of culmination of the axle d^2 and the point u^1, so that the power of the spring *u* may throw it against the block *w* or w^1, and reverse the position of the shuttle and hold it fast.

The index is stopped by means of a watcher *h* and waker *l*. The waker rotates with the spindle T and index; and, if the hook l^1 meets with any obstruction, it is swung sideways, and the semi-circular part l^2 is thrown upwards, and the collar *m* is thereby raised and caused to raise the fork *i* of the watcher-key *h*, and thus to break the circuit which passes through the watcher, the pin h^2, and the plate *g*.

The hook l^1 is obstructed by means of the elbow-levers V V, which are connected with the knobs X X.

The inventor says: I do not claim any part or arrangement with the use and result thereof, as far as already well known and clearly specified.

But I *claim*, 1st, the prevention of the too early intermission or restoration of the circuit in the use of self-intermission, through the method by which a key-shuttle *q*, or its equivalent, is not only stationary during the whole travel of the armature K K^1, but also for a certain time afterwards, so that the circuit, during that time, remains either permanently broken or closed; but afterwards this shuttle is started and shoved by the indirect influence of the motion of the armature through some devices, till to the moment of breaking or restoring the circuit

and here stopped and the armature, and by that all oscillating mechanical parts are obliged to reverse immediately.

2d. The manner of stopping the index of all instruments of a circuit right opposite the desired letter, without disturbing or preventing the index, armature, or shuttle of any instrument to complete their adopted motion, by means of a "watcher" *h* and "waker" *l*, operated by the revolving hook l^1 and key-lever V, or its equivalent, in the manner specified, so that the watcher will keep open; meanwhile the shuttle makes contact, whereby the indices stop until the key is relieved and the watcher closes again.

3d. The method to keep all instruments of a circuit in unison working, and without any mechanical means, through employment of "the induction current," by retarding the influence of the electro-magnetic power at a certain degree upon that instrument which intermits the circuit, and whereby the other instruments of the circuit, not having their intermitters in activity, are governed by it, and insured to complete their motion before the circuit of the prime current is intermitted or restored again.

The said induction current in each instrument being used in connexion with some suitable means for connecting and disconnecting the self-intermitter with the armature lever, and also with a means for closing and opening the induction circuit, and for the opening and closing of the accommodation course of the prime current, which act together at once, answering simultaneously their different purposes.

No. 14,157.—Moses G. Farmer.—*Improvement in Telegraphic Registers.*—Patented January 29, 1856.

The engraving shows the connexion of the main circuits. A represents the screw-cup which receives one main wire; the course of the current is through the main circuit magnet m^1 to the anvil *a*, spring *s*, and by wire *w* to the screw-cup G, which is the connexion with the ground. The cup B receives the other main wire, and its course is through the magnet *m* to the anvil a^1, spring s^1, by w^1, to the ground G. The main circuit B will be opened by the movement of the armature lever of the local magnet L^1; if L^1 is charged, its armatures will lift the spring s^1 from the anvil a^1, and thus break the circuit B at that point. Similarly the circuit A can be broken at *a s* by the motions of the armature lever of the local magnet L.

The inventor says: I am aware that a telegraphic register, operating upon the same general principle as mine, has been invented at an earlier date by Elisha Wilson, of New Haven, Connecticut. In his machine, however, the local circuits are both closed, while in mine the local circuits are similarly both open when the main circuits are both closed. The same work which in Wilson's machine is done by the closing of the local circuit, is done in mine by the opening of the local circuit, and *vice versa*. The general plan, therefore, in which my machine agrees with Wilson's I do not claim; neither do I claim simply

substituting the breaking of the circuit for the closing to do the same work.

But what I do *claim* is, that modified combination of parts by which, in the self-acting telegraphic repeater, as described, the breaking instead of the closing of the local circuit is made to close the main circuit, and by which, throughout, the breaking of the local circuit is made a substitute for the closing.

No. 14,917.—David E. Hughes.—*Improvement in Telegraphs.*—Patented May 20, 1856.

The nature of this invention will be understood from the claims and the engravings.

The inventor says: I do not claim any feature of any existing printing or marking telegraph as any part of my invention, nor do I desire to interfere in the least with any heretofore invented.

But I *claim*, 1st, the holding in place of the attractive power of electro or natural magnetism as applied to the telegraphic purposes, whether the same be applied in the manner herein described, or in any similar manner producing like results.

2d. Particularly I claim combining with the permanent magnet B an adjustable spring almost sufficient to sever it from its contact with the soft iron of the electro-magnet A, and a lever D, or its equivalent, which, after the permanent magnet has been separated from the iron by the action of a current, shall bring it back again into renewed contact by the action of the power which has been called into action by the retreat of the magnet.

3d. I claim the employment of two cog-wheels or circuit-breakers R S at each station, so arranged that one shall be in connexion with the electro-magnet at the same station, and the other in connexion with the transmitting cylinder at that station, the whole being arranged so that the connexion alternates at each station for every letter between the electro-magnet and the transmitting cylinder at that station, in such manner that the through connexion is always simultaneously through the transmitting cylinder of one station and the electro-magnet of the other station, whereby the machine at each station can at the same time be transmitting a message and receiving a message; it being understood, however, that I do not claim, in general, the use of a single wire for the simultaneous transmission of different messages by means of rapid changes of connexion, which is not new, but only the peculiar manner as above claimed, in which I have applied it in connexion with my machine.

4th. So arranging a bolt L and operating the same by a cam, or its equivalent, that it shall act upon a wheel attached to the shaft of the type-wheel J, so as to preclude the intelligence from one station being communicated to any other station or stations on the circuit from which it is desired to withhold the communication.

5th. I claim the employment of a vibrating spring O, properly weighted at its extremity, if necessary, and so arranged by a series of mechanism as to govern and regulate the movement of the type-wheel

J. This I claim also as a governor in other machinery, without limiting its use to its connexion with electro-magnetism.

6th. I claim printing by electro-magnetism, by a continuously moving type-wheel, printing while in motion.

7. I claim the arrangement of a cylinder S, with pins spirally arranged thereon, to operate by contact with metallic points to close and break the circuit, when this is combined, for the purposes herein set forth, with the systems of keys W W W W, &c. and catches, so arranged that any desired point may be thrown into a position where it will be retained until it is struck by its corresponding pin.

No. 15,373.—Moses G. Farmer.—*Improvement in Self-Acting Electric Telegraphs.*—Patented July 12, 1856.

When neither station is transmitting, the switch S *w* of each instrument is turned into the position represented in dotted lines in fig. 1. The current then passes from the screw-cup A, through the magnet M, by the wires *c* and *z*, to the switch S *w* and bar I, thence by the bar L, key B *r*, anvil *h*, and wire *k*, to the screw-cup H; the current not passing through the circuit-wheel is not broken, and the magnet remains permanently charged. When the operator at one end desires to transmit, he moves his switch S *w* into the position drawn in full in fig. 1, by which the current is thrown through the circuit-wheel of his machine; whereby the circuit is made and broken, and the armatures of both magnets are set in operation, and the circuit-springs, letter-wheels, and printing-wheels of both instruments revolve together. The operator at the transmitting station then sends his message through the keys A B C etc., the current passing through the transmitting instrument as follows: from the screw-cup A, by M *c* B D *d*, segments *i* or *i*, wires F or G, to the bar L, and by the key B *r* and wire *k* to the screw-cup H. Through the receiving instrument it passes from the screw-cup A by the magnet M, thence by the wires *c* and *z* to the switch S *w* and bar I, and by the wire *n* to the bar L, back to the screw-cup H, as before.

The inventor says: I do not claim arresting the motion of the type-wheel by a positive stop upon the key which interrupts the motion of the wheel whenever a key is depressed and at a moment when the circuit is broken, as in the telegraph of Siemens and Halskes.

But I *claim* the method described of arresting the motion of the type-wheel by means of the alternately open and closed keys, in combination with the circuit-wheel, constructed and operating in the manner substantially as set forth.

2d. I claim the combination of a straight key-board with a circuit-wheel, when the two are connected together by means of the wires F and G, whereby the place of making and breaking the circuit may be transferred to the immediate vicinity of the key-board, for the purpose set forth.

3d. The method described of putting the two machines in correspondence with each other, the current being turned out of the operating

magnet M of the receiving machine by means of the regulating key R g, the arm b^1, insulated spring c^2, and their connexions, operating in the manner substantially as set forth.

No. 14,731.—Albert J. Partridge.—*Improvement in Electro-Magnetic Printing Telegraphs.*—Patented April 22, 1856.

The branching of the circuit takes place between the pillar P and the pin p^1. To the pillar P is pivoted a metal arm S, which has a T-shaped extremity, which is capable, by a slight vibrating movement, of entering a slit in either of two small brass blocks s^1 s^2, which are secured to a slab L of ivory. To the block s^1 is connected a wire t^1, which leads along one side of the slab L and down through a hole i^1 in the base A and then to a pin u^1, and from thence up through a hole w^1 to the helix of the magnet J J. To the block s^2 is connected a wire t^2 which passes through a hole v^2 in the base and then across to a pin u^2 and from thence up through a hole w^2, to connect with the helix of the magnet K K.

While the revolution of the type-wheel E^1 continues, there is no perceptible movement of the loose piece x of the clutch along the shaft, and the spring x^2 holding the said piece x closely engaged with the piece x^1 causes the circuit-changer s to remain in contact with the block s^1; but when the type-wheel shaft is suddenly arrested by the depression of a key-bar lever, the loose part x by the inertia of the fly-wheel x^3 moves far enough along the shaft to move the circuit-changer into the slit in the block s^2; thus, without breaking the circuit, the circuit is transferred from the magnet J J to the magnet K K, and the printing and feeding movement of the paper effected. But this change of circuit is only momentary; for as soon as the momentum of the fly-wheel x^3 is spent, the spring x^2 forces back the part x, and returns the circuit-changer to the block s^1.

The operator, by depressing the knob of either of the key-levers q q, throws up the inner end of that lever (as shown in fig. 3) to such a position that the revolution of the circuit-breaker G will bring the projection e in contact with it, and thus cause the circuit-breaker to be arrested. The arrest of the circuit-breaker of the sending instrument stops the operation of the whole of that instrument, and also prevents the action of the escapement of the receiving instrument, and consequently stops that instrument also, and thus causes the change of circuit to take place in the manner before described through the momentum of the wheel x^3 acting on the clutch.

Claim.—The mode of operating the circuit-changer S to change the circuit by means of the clutch x x, and fly-wheel x^3 attached to the loose part thereof.

No. 14,759.—Henry N. Baker.—*Improvement in Electro-Magnetic Printing Telegraphs.*—Patented April 29, 1856.

The wire 13 connects with the metal plate 14, which is provided with two spring keys 16 and 17. The wire 12 passes from 15 to 19,

to which and to the screw 20 the helix of the magnet E is connected, and from 20 a wire 21 goes to the key 16. The ends of the helix of the magnet H connect with 15, 22, and 17. By depressing the key 16 the circuit is caused to pass through the helix of magnet E, and the type-wheel C may be brought to such a position as to present any desired letter opposite the roller F. Then by allowing the finger-key 16 to rise, and depressing the key 17, the circuit passes from 17 to 15 and the printing magnet H, causing the paper to move along and the type opposite the roller F to be lifted by the curved tongue *p*, and pressed against the paper under the said roller to produce the impression. To repeat two letters in the same word, the key 17 must be depressed twice without closing the key 16. To make the spaces between the words, the key 16 is first depressed, and before the finger is taken off to allow the circuit to break, the key 17 is depressed to close the circuit through the printing magnet H. The circuit through the type-wheel magnet not having been opened when the movement of the lever G takes place, and the type-wheel consequently only having moved half the distance necessary to bring a new type between the tongue *p* of the lever and the roller F, causes the tongue to fall into a space between two types and thus renders it inoperative, but yet allows the movement of the roller F to take place to feed the paper. By keeping the key 16 closed, and closing and opening the key, a space of any desired length may be produced; but for the spaces to separate the words, the key 16 needs only to be kept closed during one closing and opening movement of the key 17, after which it may be played as before to move the type-wheel.

Claim.—The arrangement of the type-wheel C, the escapement wheel *i* attached thereto, the arrangement of the crutch or detent *j j*, acting upon the said escapement wheel relatively to the armature of the type-wheel magnet E, and the arrangement of the whole relatively to the tongue *p*, by which the types are lifted up into contact with the paper—all in such a manner that when the circuit is closed through the type-wheel magnet the tongue *p* will be opposite a space between two letters, and when, during the closing of said circuit, the circuit by which the said tongue and the feed-rollers are acted upon is closed, the tongue will be inoperative, and the feed-rollers allowed to act without any impression being given, thereby producing a space between the printed letters or words, substantially as herein set forth.

No. 14,711.—Andrew Coleman.—*Improvement in Receiving Magnets for Telegraphs.*—Patented April 22, 1856.

The curved form of the faces *a a* of the poles of the magnet A and of the armature B allows the armature to rock or roll, and hence to be converted into a lever with a changeable fulcrum. The finger *g*, which, playing between *h* and h^1, opens and closes the circuit, is pivoted to a small stand *k* secured to the top of the armature, and sufficient friction is produced between the stand and the finger by means of a screw and nut on the pivot, and a small spring *l*, to overcome the inertia of

the finger, and cause it to move with the armature until it is arrested by either of the screws h h^1, after which it allows the armature to move independently of it.

Claim.—So constructing or arranging the armature B and applying the spring *e*, or its equivalent, that the armature constitutes the whole or part of a variable lever which causes the effective force of the spring, or its equivalent, to increase or diminish as the magnetic force becomes greater or less; when this is combined with the so applying the finger *g*, by which the local circuit is opened and closed, that the said finger is caused to move with the armature by friction only, or its equivalent, and, after having moved the slight distance necessary to open or close the circuit, leaves the armature free to move as far as necessary independently of it, thereby obviating the necessity of manual adjustment of the armature to compensate for variations of magnetic force.

No. 15,251.—George P. Reed.—*Improvement in Independent Seconds Movement for Watches.*—Patented July 1, 1856.

When the wheel B is put in motion, a regular intermittent vibratory motion will be imparted to the lever-pawl, in consequence of its being caused to slide from one tooth to the other of the wheel B; and every time it is so moved by a tooth the catch *b* will be moved forward over a tooth of the ratchet wheel, and will also be drawn back by the action of the spring I, so as to turn said ratchet and its second hand a sector corresponding with $\frac{1}{60}$ part of a circle. Thus an intermittent rotary motion will be imparted to the arbor of the second hand, and so as to indicate seconds on its dial, provided such dial be suitably divided and marked.

The inventor says: I do not claim applying to a watch or time-piece an independent second mechanism operated or driven by a motor, or main-spring and train of gears, separate from the main-spring and train of gears, for imparting motion to the hour and minute hands of such watch or time-piece; but I *claim* the combination of the gear-wheel B, the ratchet C, curved lever draw-pawl G, the spring I, and the detacher L, the whole constituting a mechanism applicable to the arbor of the index hand of a dial, and for imparting to the same an intermittant rotary movement, in the manner and for the purpose as specified.

IX.—CIVIL ENGINEERING.

No. 15,257.—William Silver, jr.—*Improvement in Blasting-Powder.*—Patented July 1, 1856.

The object of this invention is to produce a compound that is cheaper than common blasting powder, and possesses greater explosive force This compound is composed of—

10 parts of gunpowder.
5½ parts of chlorate of potassa.
2 parts of calcined or burnt cork.

Claim.—The explosive compound herein described, consisting of rags or paper saturated and coated with a mixture of gunpowder, chlorate of potassa, and powdered calcined cork, in about the proportions set forth.

No. 16,053.—William L. Gallaudet.—*Improved Spring Holder for Slat Blinds.*—Patented November 11, 1856.

When the slats are wide open, as in fig. 2, the rod will be held by the simple frictional pressure of the spring against hook *b* from dropping down; and when the slats are closed, the spring *a* will also retain them in position.

Claim.—The combination of the peculiarly shaped spring described, with the rod and with the lower rail, substantially in the manner set forth.

No. 15,587.—Clarendon Williams.—*Improved Apparatus for Boring Artesian Wells.*—Patented August 19, 1856.

Motion being imparted to the shaft F and auger-shaft N, the augur O is revolved and works the rock by means of its spiral flange. The steel plate S, which is provided with cutters at its periphery, is attached in such a manner above the cone as to work in a slot instead of working in a central hole; it can thus assume an eccentric motion and cut a hole into the rock of a larger diameter than its own, to allow the introduction of the tube R. The nut G, working on screw-shaft F, is placed between two plates *i*, and may be secured to the shaft by means of a set-screw, and will then turn with the shaft, thus preventing the further descent of the auger and shaft until the rock is reduced. If the nut is released and fastened between the plates *i i*, the screw will feed the auger to the rock.

Claim.—The boring of earth and stone and sinking of tubing at one operation, forming artesian wells, by the mechanism employed, consisting of screw F and nut G, arranged and operating in the manner described, with the auger, constructed substantially and operating in the manner set forth.

No. 14,314.—Horace L. Hervey.—*Improvement in the Arched Trussed Bridge.*—Patented February 26, 1856.

The clamp in fig. 2 for fastening the arch to the truss may have in it a friction roller, as shown in fig. 3, running upon the arch and wedge-shaped block, (fig. 4,) attached to the arch for the purpose of preventing friction when the camber of the arch changes; and as the arch changes its camber it will not affect the truss in a horizontal direction, but at the same time will cause the truss to rise and fall in proportion to the change in the camber of the arch.

Claim.—1st. The use of compression braces M, in combination with the tension braces A, to support alternate bearing points.

2d. The clamps, with or without slots in them, or slots in the arch with or without friction-rollers traversing the wedge-blocks, or the equivalents of them, in combination with the truss, for the purpose of allowing the truss to rise and fall in proportion to the change in the camber of the arch, as herein set forth.

No. 15,873.—Balaam G. Anderson.—*Improved Canal Bridge.*—Patented October 14, 1856.

When the parts C C of the bridge are turned round to the position represented in fig. 3, sufficient space is left for the free passage of canal boats, as will be understood by reference to the claim and engravings.

Claim.—Constructing the bridge of three parts B C C, the parts C C being connected by joints F to the part B, and having their supports D provided with rollers *a*, which work on curved ways E at the bottom of the canal, substantially as described for the purpose set forth.

No. 14,928.—Napoleon B. Proctor.—*Improved Floating Draw-Bridge.*—Patented May 20, 1856.

By working the capstan *n* the boat is moved forward to form a connected line or back into the slip, leaving the draw open That part of the platform *h h* which rests on the boat can be raised by means of lever *o*, so that the timbers attached to the deck of the boat may pass under the platform as the boat is moved into the slip. The platform *p p* can be raised and lowered, and rests on the boat when the connexion is formed; the connexion remains, therefore, unbroken as both platforms rise and sink with the boat.

Claim.—The construction of a floating draw-bridge, by erecting a wharf or dock, on each side of or partly or wholly within rivers or other waters over or across which such bridge may be required, with a slip in one of said docks or wharves of a suitable size for the reception of a boat of proper dimensions, viz: nearly as wide as the slip and about twice the length of the open space between the docks or wharves, (through which open space vessels may pass and repass,) which boat, by steam or other power, can be readily worked forward from the slip

to the opposite dock or wharf, and thus form a connexion therewith and back again into the slip, leaving the space or channel open for the passage and repassage of vessels.

No. 14,584.—George W. O. Huygens, assignor to Himself, Charles Bender, and D. F. Tiedemann.—*Improvement in Bridges.*—Patented April 1, 1856.

The invention is based on the principle of compensating the result of the elastic actions in the materials, by compensating the result of compression in the material by its own action, using for that purpose the compensated effect of compression only, which compression is originated from the pressure caused by the loads on the floor of the bridge.

The diagram illustrates the compensation of the elastic action. A and *b* represent the arches; the dotted lines represent the curves which said arches would assume under the influence of a load W, when not compensated. The proportion between the lines $a\ a^1$ and $a^2\ a^3$, illustrates the measure of compensation.

Claim.—The combination of and between those mechanical agencies and technical parts which constitute the herein described mode to prevent vibration in a bridge by using the compensated effect of compression only as carried out and brought in application in the herein described compensating bridge.

2d. The combination of and between the mode in which the arches are arranged and cross each other, and the mode in which they are connected with the floor, and finally, the mode in which they receive their leverage, as herein described; the mechanical effect of which said combination is, to originate the tendencies in the upper and lower arches to curve apart or asunder.

3d. The combination of and between the mode in which the arches cross each other, and the mode in which they are connected with the floor, and the mode, finally, in which they are constructed in regard to amount of material, as herein described; the mechanical effect of which said combination is, to originate the equal intensity of the said tendencies.

4th. The employment in bridge construction of the herein described arches, arranged and connected as described, as a practical substitute for upper cords, and generally for all such parts in bridges which serve to uphold the floor.

5th. The special mode in which the herein described arches are connected with the floor.

No. 15,823.—Isaiah Rogers.—*Improvement in Bridges.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—1st. The formation, substantially as described, of an arch

whose voussoirs consist of one or more ranges of tubes in vertical planes, held in position by the described radial plates, with confining flanges; the tubes of each component arc being gradually displayed and enlarged from the crown of the arch each way, the enlargement in one direction and the contraction in the other direction being such as to preserve a circular section throughout, or gradually ovaling from the haunches by a vertical enlargement towards the ends, and a corresponding contraction toward the centre of the arch, according to circumstances.

2d. In combination therewith, the described mode of staying and bracing together the several ranges of such tubular voussoirs.

No. 14,313.—Peter C. Guiou.—*Improvement in Girders for Bridges.*—Patented February 26, 1856.

The lower part of the arch A, consisting of the angle irons *c c*, is capable of resisting great tensional strain; and the upper part, consisting of the skewbacks *d d* and the timbers *e e*, fitted tightly between them, is capable of resisting great compressive force.

The inventor says: I am aware that a trussed girder of the bowstring kind has been made by combining the angular iron with wood, the wood being placed on the sides of the iron; and therefore I do not claim the use of iron and wood only, as above described. Neither do I claim the application of wood on the sides of the iron arch; but I do *claim* the application of segmental timbers *e e* on the top of the iron arch. What I claim is the peculiar combination of parts constituting the arch A, to wit: the two angle irons *c c*, the spurs or double skewbacks *d d*, and the timbers *e*, all applied and united substantially as herein set forth.

No. 15,048.—Lucius E. Truesdell.—*Improvement in Lattice Bridges.*—Patented June 3, 1856.

The inventor says: The braces C and D serve to distribute the weight communicated to any part of the bridge over the whole, and thus relieve those parts immediately in the plane of pressure from undue strain.

Claim.—The braces C D, in combination with the rafters A, when arranged in the manner substantially as and for the purposes described.

No. 14,208.—Harriet V. Terry, administratrix of the estate of William D. Terry, deceased.—*Improved Mode of Constructing Cast-Iron Buildings.*—Patented February 5, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the boxes and ties when used separately, as this has been done before; but what is *claimed* herein

is, the forming of cast-iron hollow walls for buildings, by means of the combined use of the boxes A, plates C, and tie-pieces D, provided with rebates *c* and tongues *d*, for firmly uniting them together, substantially in the manner described and represented.

No. 15,002.—Thomas Estlack.—*Improved Device and Walls of Buildings for Preventing Drainage to Goods by Water in case of Fires.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I disclaim all discharge chutes where a continuous and connected surface is employed, such as is shown in the arrangements for relieving from surface-water the decks of vessels and flat roofs of houses.

But I *claim* the combination of the receiver C in the masonry of the wall with the chute D extending over and into the receiver, secured to the floor, to be relieved and altogether detached from the aforesaid receiver.

No. 14,301.—William Bell.—*Improved Machine for Depositing Coal in Cellars.*—Patented February 26, 1856.

The tube B is attached to a hole in the bottom of the cart, and can be opened or shut by means of a slide D. Before this slide is opened, the tube is inserted into the coal-scuttle in a side walk. The slide can then be opened to allow the coals to pass through the scuttle without dropping upon the side-walk.

Claim.—The bed-plate conductor B and slide D, with the tube attachments, in connexion with a hole in the cart or other vehicle, as set forth.

No. 14,323.—A. R. Moen.—*Improved Mode of Constructing Walls and Floors of Cellars.*—Patented February 26, 1856.

The stones or bricks are coated on one side with asphaltum while perfectly dry. Thus prepared, they are laid into a wall with hydraulic cement, with the asphaltum sides out. The wall then receives on its outside a coat of melted asphaltum, so as to fill all the interstices.

Claim.—The mode herein described of forming walls and floors by combining into one mass the cement and asphaltum, by means of the stone or other suitable material, as herein specified, by which the asphaltum is caused perfectly to adhere to the bricks or stone of the wall, and admits the hydraulic cement also to adhere to the same stone or brick, as above described.

No. 14,273.—William D. Bartlett.—*Improved Construction of Cisterns.*—Patented February 19, 1856.

The cistern is made in the earth with an opening or openings to admit the water of the particular stratum in which it is located, with the hole in the earth through which it was put in filled above it, so that the water in the several strata above the apertures in the cistern will flow on, or have an opportunity to flow on, in the same strata that it did before the cistern was put in, so that the cistern will be filled with the water of the stratum in which it is placed, and the water of that stratum only.

Claim.—A cistern constructed substantially as described, or in any equivalent manner, for the purposes set forth.

No. 14,902.—Edward Bookhout and Charles H. Hewlett.—*Improvement in Water-Closets.*—Patented May 20, 1856.

The foot and waste K has an arm G projecting from each side; said arms rest in recesses formed in the shoe L L, and are held in place by means of binders O O, which enable the bowl D and waste to oscillate backward and forward.

The bowl being drawn out from the case A for use, the arms G G and faucet-plug F^1 make part of a revolution, the faucet F opens, the water enters by pipe R, and passes into a hole in the end of the arm, (on which the plug F^1 is fastened,) and out of the top side of said arm through pipe H into the bowl, when it is caused by the fan to wash the bowl.

The bowl, &c., is supported by the chain E. When the bowl is shoved back, the clean water is cut off by the faucet F, the excrement in the bowl is thrown against the pan *m*, which causes it to open. The water, &c., passes out the opening at the bottom of waste K, opens the lower pan M, and enters the soil pipe.

The inventors say: We do not claim as our invention a movable bowl, for a movable bowl is used in what is termed the "swing urinal;" neither do we claim the pan, for the pan has long been in use in what is known as the "pan closet," (the bowl is stationary); the pan also is old device.

But we *claim*, 1st, a bowl having the forward and backward motions by means of the said bowl and waste working on a shaft or arms, or their equivalent.

2d. The use of the pan in combination with a movable bowl.

No. 16,133.—J. Claude White and Robert Hay.—*Improved Apparatus for Hoisting Coal.*—Patented November 25, 1856.

The apparatus being in the position shown in fig. 1, the vibrating platform E, with its truck D and its contents, is tilted, and the coal is allowed to escape through a door at the end into the chute M, and thence into the bucket K. The latter is now hoisted by turning the

barrel H until it reaches the position shown in fig. 2, at which point the inclined planes *i* have so acted on the spring-catches *h* as to withdraw them from contact with the door *b*, and the material passes down the chute L into the receptacle desired.

Claim.—The bucket K, with its inclined base, its doors *b* and *d*, and spring latches *h* and h^1, in combination with the chute L and inclined planes *i* i^1, the whole being arranged substantially in the manner set forth and for the purpose specified.

No. 14,107.—F. H. Moore.—*Improvement in Safety Coal-Hole Covers.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The combination of the grating E and rods *g* with the cover D, operating in the manner substantially as herein set forth.

No. 14,359.—George C. Jenks.—*Improved Guard for Coal-Holes.*—Patented March 4, 1856.

Fig. 1 represents a side view, fig. 2 a front elevation, and fig. 3 a side elevation of the apparatus. The nature of the improvement will be understood from the claim and engravings.

The inventor says: I am aware that the cover of a coal vault opening has had a solid ring-guard and standard so made and applied together and to it as not only to be capable of being raised out of the coal vault with the cover, during the act of elevating the latter, but of being set up above and around the hole or opening so as to serve as a guard to prevent a person from accidentally slipping or falling into the same; I therefore disclaim such, but rest my *claim* on my improvement, viz: a coal vault mouth-guard, made expansive, and provided with means whereby it shall or may be expanded while being elevated to a horizontal position above the opening of the vault, the said guard by such means being caused, when it is raised into a horizontal position, to extend beyond the sides of the opening, so as to lessen the danger of accident to pedestrians, as specified.

No. 15,300.—Ephraim Morris.—*Improved Apparatus for Raising and Dumping Coal.*—Patented July 8, 1856.

Fig. 1 represents the general arrangement of the apparatus. F represents the frame of an inclined railway, on which the car I supporting a bucket H runs down by its own weight, and when arrived at the lower end, the bucket H is lowered to receive the charge from the boat G. The loaded car is then drawn up and eventually discharged.

When the car is drawn up along the inclined railway, the traveller 10 runs over the rope *g*, said rope resting on the pulley *p* between the

chains 8 8, until the knot 11 comes in contact with the traveller 10, and holds the same stationary, while the farther motion of the car causes said chain to rotate the drum *p* and pulley *o*, (fig. 3,) winding the chain *n*, raising the bails *m m*, and dumping the contents of the bucket. The rope *e* is then to be lowered on, running around the pulleys *b* and *c*, which are connected by gear-wheels *d* to prevent the rope from slipping, and the pawl *i* and ratchet-wheel *h* prevent the bucket H from descending. When the car arrives at the lower end, the pawl *i* strikes against the projection 2, sets the ratchet-wheel *h* free, and the bucket descends to receive its charge.

Claim.—I *claim* the pulleys *b* and *c*, geared together so as to prevent the rope slipping, when combined with the ratchet-wheel *h*, pawl *i*, and stop 2, or its equivalent; whereby the bucket is sustained in its elevated position while being drawn along in either direction, and can only be lowered when the pawl *i* is disengaged from the ratchet-wheel *h*.

I also claim the bails *m m*, fitted with hooks to take the loops *l* on the bucket H, when the same is elevated, and dump the contents thereof by drawing up said bails.

I also claim the adjustable rope *q*, with its knot or projection 11, for taking the traveller 10, and through the chains 8 8 and *n*, and pulleys or drums O and P, drawing up the bails *m m* by the motion of the car, and dumping the contents from the bucket H.

No. 15,434.—James Myers, jr.—*Improvement in Coal-Scuttles.*—Patented July 29, 1856.

This invention consists in constructing the scuttle A with a cast-iron dish-shaped bottom B, having a supporting side flange *c* to which the sheet-iron body of the scuttle is attached, for the purpose of preventing the oxydizing of the bottom of the scuttle by the water which most coal contains, and the consequent wearing out of the same.

Claim.—Constructing the scuttle, as shown and described, with a cast-iron chambered or dish-shaped bottom B, having a supporting flange C in conjunction with and attached to the sheet or wrought iron sides or body A of the scuttle, as and for the purpose set forth.

No. 15,317.—Waldo P. Craig, assignor to Himself and William R. Righter.—*Improved Mode of Constructing Dams.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claim and illustrations. The piles, as described in the claim, are used in the construction of dams to prevent leakage, and consequently breaches in them.

Claim.—The construction and application, substantially as herein described, of the follower piles *b c*, each pile being formed from a plank having tapering sides and parallel edges, with a slanting termination at the thin end, running to one end and chamfered on each side of the slant, and with the described batten, or its equivalent, pointed from both edges

and chamfered from its outer side, one edge of the batten projecting beyond the longer edge of the pile, so as to form a rebate, fitting and overlapping the edge of the preceding pile *a*, for the purpose explained.

No. 14,117.—Thos. J. Stratton.—*Improvement in Ditching Machines.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the excavating-wheel, as such has been used before for like purposes.

But I *claim* the secondary frame D, movable about the main axle *a* and constituting the support of the excavating-wheel W and of the earth-conveyors P, for adjusting the wheel to the required depth of excavation, and causing the conveyors to conform to each new position of the wheel, substantially as specified.

No. 14,047.—Charles E. Brown.—*Improved Mode of Hanging Double Doors.*—Patented January 8, 1856.

The nature of this invention can be understood by reference to the claim and illustration.

Claim.—Connecting the double doors B B by an endless chain D, passing around pulleys C or the shafts or axes *b* of the doors, or by gearing arranged in any proper way, so that as one door is opened or closed, the other will be moved simultaneously in a similar or opposite direction, as described.

No. 15,465.—James H. Banta.—*Improved Weather-Strip for Doors.*—Patented August 5, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventor says: I do not claim a weather-strip applied on the bottom edge of a door or window, and kept to the sill by springs, as this has before been done; neither do I claim a double inclined latch; but I *claim* the bar *e* constructed with a T-head *f*, and fitted into the slot in the plate *e*, substantially as specified.

Also, in combination with said bar *e*, the double inclined latch *h*, for the purposes and substantially as specified.

No. 16,077.—Reuben Wight.—*Improved Weather-Strips for Doors.*—Patented November 11, 1856.

The weather-strip A can be raised or lowered by means of the toothed sector E operating rack D. By unscrewing the knob G, the sector E can be turned on fulcrum F over cam J; and when arrived to the dotted

position K, the weather-strip can be secured in an elevated position represented in the engraving.

Claim.—The adjustable weather-strip A operated by the segment lever E, in connexion with the movable button G and the cams J J, the whole constructed and arranged in the manner and for the purpose fully set forth.

No. 16,046.—John Cole and A. Little O. Wall.—*Improvement in Draining Machines.*—Patented November 11, 1856.

As this machine is drawn along, the rotating coulter F cuts a furrow in the ground, and is followed by the stationary coulters D and E, to which the front mole M is attached, digging the drain, which is followed by a larger mole N attached to mole M, and provided with a fin *n* at its sole; the drain cut in the ground by this apparatus is represented in a section in fig. 2.

Claim.—1st. The combination of the brace coulter E and rotating coulter F with the mole, substantially as set forth.

2d. Constructing the mole in sections flexibly connected together.

3d. Constructing the mole with a fin or knife on its sole, to make a deep furrow in the bottom of the drain to facilitate the entrance of the water from the adjacent soil.

No. 14,025.—Orson E. Mallory.—*Improved Machine for Making Eave-Troughs.*—Patented January 1, 1856.

The sheet metal is inserted between the movable clasp *k* and the half-round shaft *b;* the clasp *k* is then pressed down upon the tin and the sliding bar *d*, which can be raised and kept stationary by lengthening the rods *f*, and is then pressed down by first shortening the rods *f* and then turning the shaft *h* by means of its crank. The shaft *b* is then turned by means of its crank *m*, and the sliding bar *d* presses the metal against the shaft *b*, thus forming the eave-trough corresponding with the shape of shaft *b*.

Claim.—The use of the semi-cylindrical shaft *b*, metallic sliding bar *d*, and the end rollers *e*, constructed, arranged, and operating substantially as set forth.

No. 14,762.—Asa W. Cady.—*Improved Machine for Excavating and Moving Earth.*—Patented April 29, 1856.

The machine being over the place for excavation, the detent D is raised till the scraper S descends and rests on the ground. When the load is taken up, the spur-wheel *a* is brought in to gear with the pinion-wheel *v* by means of lever *y*, whereby the scraper is raised while the team is in motion. In order to unload, the hook *p* is detached by means of lever *u*, the bridge raised by hand until loop *r* is caught by the hook *q*, and the team started till the load is deposited. The hook

q is then detached from the loop *r*, and the bridge descends to receive another load.

Claim.—The plan embodied in the structure of the bridge G and scraper S, contained in their form and method of use in the machine; and in the arrangements made for operating and controlling these, with the gearing and fixtures, as actuated by hand or horse power; and in adapting them to and combining them with a wheeled vehicle or wagon, so that the operation of excavating earth may be performed.

No. 14,068.—J. J. Savage.—*Improvement in Excavating Machines.*—Patented January 8, 1856.

The nature and object of this improvement will be understood from the claims and engravings.

Claim.—1st. The connecting of the scoop and staff of excavating machines to the swinging post by vibratory or oscillating arms or links H H, or their mechanical equivalents, in the manner and for the purposes substantially as herein described and shown.

2d. I claim the adjustable broom G, in combination with the excavating scoop and staff, combined in the manner and for the purposes of an excavating machine, substantially as herein set forth and shown.

I also claim the combination of the vibratory or oscillating connecting arms or bars H H of the scoop-staff, with the feed-chain *m*, windlass O, gearing *q* and *r*, and sheave-pulley K, for the purpose of automatically feeding the scoop downwards, simultaneously with its forward motion, as herein described.

No. 14,933.—John Taggart.—*Improvement in Excavating Scoops.*—Patented May 20, 1856.

When both of the scoops B B are closed, the two dischargers P P lie close against the bottoms of the scoops, while the act of opening the same causes the dischargers to be raised in such a manner as to force out the contents of the scoops.

Claim.—Applying one or two dischargers within a pair of scoops, so as to operate therewith, or be operated thereby, in the manner and for the purpose essentially as described.

No. 15,102.—Daniel Judd.—*Improved Rotary Excavator.*—Patented June 10, 1856.

While the excavator A is being filled, the chains G are rendered to their full extent, and confine the excavator at the proper position for entering the earth, the wheels being raised from the ground, which, with the frame, rests as a weight upon the excavator. When the excavator is filled, the load is made to rest entirely upon the wheels by means of the crank E and ratchet wheel F, when the excavator is conveyed to its destination and turned bottom side up by turning the crank.

Claim.—The cylindrical form of the excavator A, so formed in combination with the wheels, windlass E, and frames, that the load bears on its centre and rotates when being raised, and also when being discharged.

No. 14,966.—Charles A. Mann, jr.—*Improved Excavator.*—Patented May 27, 1856.

The machine may be constructed with a suitable engine power to set it in motion upon the track and to communicate power to the driving wheels *n n*, which revolve the wheels *t t t t* and set the arms and scoops in motion. The friction disks *y z*, &c., roll upon the bowed plates or oblique cams 16, 17, 18, 19, and the disks are thereby caused to turn or change the position of the scoops or shovels *x x x*, &c. For instance, the shovels that first operate upon the obstacle to be removed are presented broadly thereto, shovel up to their capacity, and in passing upward and over, the cam-plates 16, 17, 18, 19, acting on the friction-disks, tilt or deflect the scoops when they arrive at a required point, and thereby empty themselves by throwing out and depositing their supply over the side of the machine.

Claim.—The construction and arrangement of the cylindrical chambers *u u*, formed with the inserted semi-rotating arms *v v v v v*, the scoops *x x x x*, the fingers and friction-disks Y Z, &c., with the combination therewith of the springs 5, 6, 7, 8, (figure 2.) The whole operated through the obliquely arranged wheels *t t t t*, in combination with the bowed cam-plates 16, 17, 18, 19, (figure 1.)

I also claim the arrangement of said devices in combination with the adjustable or graduating framing *g g*, J J, and the plough attachments *c c c*.

No. 15,813.—S. G. L. Morrow.—*Improvement in Excavators.*—Patented September 30, 1856.

The nature of this invention consists in constructing an excavator with the cutter *f* and elevator D, held by a lever *l* running across the frame and within reach of the driver, so as to be raised and lowered at pleasure; and in combining therewith a tilting chute I under the head of the elevator, held and operated by a lever l^1 running to the driver's seat, said chute discharging the product of excavation into a cart behind the machine.

The inventor says: Disclaiming the several parts separately, I *claim* the arrangement as described of the cutter, elevator, and discharge chute, with the levers *l l* regulating the same.

No. 15,875.—James Bourbin.—*Improvement in Excavators.*—Patented October 14, 1856.

Motion being imparted to the centre shaft of the apparatus, the shovels X, the handles of which are hinged to the ring 3, are caused to

revolve with said shaft, and rise and descend on the guide ring *o*, penetrating the soil in their lowest position, and carrying it up and discharging the load at their highest position, as represented in the engraving.

Claim.—The application of any number of shovels required, and working from one centre on the circular principle, also the different appliances by which the shovels are directed in their different movements, as described.

No. 16,081.—John F. Willey, assignor to Benjamin F. Merrill, Thomas Phillips, and Himself.—*Improvement in Excavators.*—Patented November 11, 1856.

The operation of this apparatus is as follows: The scoop is lowered so that the part D may penetrate the earth, and the front end of the part E is raised and retained in an elevated position by the chain I, which is wound up by the winch J. As the cart moves along, the earth passes into the part D of the scoop; when this part is filled, the front part E is lowered to a level with part D, as shown by dotted lines, and filled. The entire scoop is then raised upward by turning shaft H, and the implement is drawn to the desired place and delivered of its contents by turning the slats *a* in a vertical position by moving levers F.

Claim.—Forming the scoop of two parts D E, connected by joints or links *d d*, the bottom of the scoop being formed of slats *a*, which are allowed to turn, the scoop being suspended to the cart, and the whole arranged as shown and described for the purpose specified.

No. 15,561.—Ephraim D. Foss.—*Improved Farm Fence for Rolling Ground.*—Patented August 19, 1856.

The pannels of this fence are attached to a post 1, which is provided with a movable base; said, base turning on a pin, can be fixed in any desired position by inserting a pin through the hole *b*, and through a corresponding one in the post; thus any desired inclination can be given to the posts and fence on rolling ground. The tenons 4 and 5 (figs. 2 and 3) are passed through corresponding mortises for making the connexion with a corner post, as represented in fig. 1.

The inventor says: I distinctly disclaim all and each of the several devices used in the construction of portable fences, which have been in common use and have been patented; but I *claim* the vertical shifting base post, in combination with the arrangement and use of the tenons, as set forth.

No. 14,518.—J. B. Reyman.—*Field Fence.*—Patented March 25, 1856.

The boards *a a a* are nailed to the uprights P P^1. The middle of the wire is placed across the notch *d*, and both ends are then bent

down, passed through the hole O, and fastened to the ends of the stakes *n*.

I do not claim forming a crotch or bearing for the support of fences by means of angularly placed stakes, as such are well known; nor do I claim, of itself, the angular position of the stakes *n n*, separately and alone considered. But I *claim* forming a support for fences by means of the angularly placed stakes *n n*, in combination with the mode of connecting them together, and to the fence, by means of the wire S, or its equivalent; the stakes and the wires being so proportioned and arranged that the act of driving the stakes into the ground shall tighten the wires and bind the whole together, the different parts being arranged substantially as described.

No. 14,581.—S. G. Tufts.—*Improved Field Fence.*—Patented April 1, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Constructing fences in distinct and separate sections, connecting the same by adjustable links and wedges *c* at their upper corners, and supporting said sections by chains E placed between and at right angles thereto, as described.

No. 15,188.—Benjamin F. Lyon.—*Portable Field Fence.*—Patented June 24, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—1st. The construction of the mortise in my fence posts, as described.

2d. The construction of my rails A B C D with the shoulders and ends of the dove-tail rounds, and also with the dove-tails H and I, made reverse, as shown, and on the opposite sides of the rails.

I do not claim the dove-tail mortises and rails alone, but the dove-tail mortises with the upper part cut square and the lower part dove-tailing in the manner as shown, or by any other substantially the same, and which will produce the same result.

No. 16,236.—James G. Hunt.—*Improved Portable Field Fence.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The compound triangular brace, as shown and described, for the uses and purposes set forth, in combination with the projection of one or more rails in whole or part of one section or panel beyond the slats or battens, and between the slats or battens of the adjoining panel.

No. 16,265.—Wm. B. Burnett.—*Improved Portable Field Fence.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Constructing the panels of a portable fence with alternately abutting rails, in combination with the binding clamp D, in the manner substantially as described.

No. 16,181.—Thomas Hoge.—*Portable Prairie Fence for Stock-Pen.*—Patented December 9, 1856.

The fence, as represented in the engraving, rests on three wheels D, the bearings E of which can be raised and lowered in the eyes *c*, and locked by means of bolts *d*. When lowered, as represented in full lines, they serve as rollers on which the fence can be moved from one locality to another; and when raised, as represented in dotted lines, the fence rests on the ground and is immovable.

Claim.—The fence described, or any other which will not collapse in being moved, arranged on a series of wheels which are capable of being raised and lowered, and, when lowered, locked, for the purpose set forth.

No. 15,812.—G. R. McIlroy.—*Improved Portable Fence.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The supporting the panels on the top of the bases or braces in the manner described, so as to allow of their being moved sidewise at the bottom sufficient to bring them into a perpendicular position on uneven ground; and securing the same by means of pins or wedges passing between the end batten of each panel immediately above the bottom rail or board, through one of a number of holes in the base or cross board at the bottom of the base, which holes are placed in a circle corresponding to that which the bottom of the panel describes, by moving it sidewise.

No. 14,152.—Thomas J. Carleton and Stephen Post.—*Improved Field Fences.*—Patented January 29, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—A fence constructed of rails secured to each other and supported at proper distances above the ground by posts composed of iron rods, twisted alternately around each other and around the rails, as herein described, and one or both of the rods bent down from the top of the fence to brace it, as specified, to the base in which the rods are fixed.

No. 14,519.—James Rowe.—*Portable Field Fences.*—Patented March 25, 1856.

The position of the battens *b b* and b^1 b^1 admits of the overlapping of the string-pieces *a a* and a^1 a^1, while the connecting pins *c c*, in passing through the holes *d d*, allow the fence to follow the curvature of the ground.

Claim.—The construction of field-fence panels with shouldered laps, perforated as described, and with upright battens in oppcsite sides of the string-pieces, operating as and for the purposes set forth.

No. 16,172.—Robert J. Brown.—*Improved Yielding-Joint for Portable Fences.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claims and engravings. The holes *a* through which the pickets pass are made on the top side of the rail of the same size as the pickets and of an elliptical shape, at the bottom of the rail, by which means this fence will adapt itself to unevennesses of the ground.

Claim.—1st. The double dovetail mortise and tenon joint of vertical posts, whether of square or triangular scantling; and the rails, whether horizontal or inclined at an angle, substantially as described.

2d. Enlarging the circular or square picket-holes of rails on the side facing the picket, in the manner described, and for the purposes set forth.

No. 16,187.—William G. Philips.—*Improved Approach-Opening Gate.*—Patented December 9, 1856.

The weight attached to cord *a* and hanging in case B being wound up, and the latch *n* down in the notch *o*, holds the gates shut. To open them, it is only necessary to draw upon cord *m*, which raises catch *n;* the falling weight in the case B turns the drum E, which, through its cranks *c d* and rods *e f*, runs the gates C D back until notch o^1 comes to catch *n*, which latter is operated upon by spring *r*. The operator then passes through the open way, and, catching hold of cord m^1, again raises catch *n*, and releasing the gates, they again run together, and are there caught and held by the latch *n* falling into the notch *o*.

The inventor says: I am aware that gates have been made to turn on their hinges or supports by a falling weight. This I do not claim.

I *claim* opening and closing a reciprocating gate or gates by means of a falling weight, through the intervention of the cords, cranks, and rods, described and represented.

No. 14,851.—Charles N. Cole.—*Improved Farm Gate.*—Patented May 13, 1856.

A person or animal walking on to either platform A A depresses the same, and operates on the pinions B B and wheels E E, and winding

up the ropes or chains F F, the gate H is immediately elevated or opened. On releasing the platform from their weight, the gate will descend to its original position.

Claim.—The arrangement and combination of the parts forming a self-acting or balance-gate, for the purposes above mentioned.

No. 15,213.—George Taylor, assignor to Harrison Ogborn and George W. Stigleman.—*Improved Farm Gate.*—Patented June 24, 1856.

As a vehicle approaches the gate, one of its wheels comes in contact with a lever F, depressing it, and sliding the cams J so as to depress the levers D D^1, which causes the gates to run out.

The inventor says: I am aware that self-acting gates differently constructed, but operated by the wheel of the carriage coming in contact with road-levers F F, have before been employed; such parts, therefore, merely, of themselves, I do not claim.

But I *claim* the combination of a gate A with the angular lever D, or D^1, in such a manner and so related to each other that the gate shall stand upon a level either when, open or closed. And I further claim the combination of the cam J with the lever D^1, or its equivalent, for the purpose of vibrating the levers D D^1, thereby opening and closing the gate.

No. 16,243.—Joseph Thomas McIntyre.—*Improvement in Railroad Gate for Cattle-Guard.*—Patented December 16, 1856.

f represents the crossing of a road over a railroad; should animals, in passing over this crossing, step off the bridge *f*, they will depress the tilting platforms *a*, which movement causes the ends *g* of said platforms to be raised, and the gates *b* to be moved into the elevated position, thus raising a barrier before the animals across the entire width of the railway space.

Claim.—The arrangement of the tilting platforms and the tilting cattle-guards with each other, and in connexion with the rails of railroads at the crossing of common roads, in such a manner that the attempt to pass to the right or to the left from said crossings on to the track or space between the enclosing fences, will, by the weight of the animals making the attempt, instantly raise a barrier before them across the entire width of said railway space, substantially in the manner and for the purpose set forth.

No. 14,826.—Samuel Oberholzer.—*Improved Method of Hanging Gates, Doors, &c.*—Patented May 6, 1856.

The elevation of the outer extremity of the gate will impart a rotary motion to the shaft *i*. The pawl *b* will play upon the teeth of the ratchet-wheel *a*, and retain the gate in any desired position. When it

is desired to let the gate down to its normal position again, it is only necessary to raise the outer end of the gate so as to bring the lever *g* under the pawl *b* and raise it, when the said pawl will be caught and retained by the pawl-holder *c*, which will allow the gate to descend until it is arrested by the descent of the pawl *b* upon the ratchet-wheel, caused by the elevation of the pawl-holder *c* by the action of lever *f* under the handle *d*, just before the gate in its descent reaches its normal position.

The inventor says: The ratchet-bar, the pinion, the ratchet-wheel, and the pawl, I am aware, have been combined with each other in producing an adjustable upper hinge for a gate, and therefore I do not claim such combination; but I *claim* the arrangement of the pawl *b* and pawl-holder *c* with each other, and with the levers *f* and *g*, the ratchet-wheel *a*, the pinion *k*, and the rack-bar *h*, substantially in the manner and for the purpose herein set forth.

No. 14,689.—J. Francis Downing.—*Improved Method of Hanging and Elevating or Depressing Farm Gates.*—Patented April 15, 1856.

The grooved wheel G forms, together with the part E of the hinge, a circular opening for the reception of the rod D, whereby friction is avoided.

Claim.—The part of the hinge E E^1, and the application of the lever as a means of elevating and lowering the gate, including the manner of obtaining the fulcrum or point of purchase by attaching a rod to any convenient point on the large post C.

No. 14,131.—J. A. Ayres.—*Method of Opening and Closing Farm Gates.*—Patented January 22, 1856.

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. The employment and arrangement of the double-acting self-adjusting jointed treadle J J^1 J^2, in combination with the self-locking catches I I, substantially as and for the purpose set forth.

2d. Opening and closing the two parts of the gate, and readjusting the driving-boards H H^1, by means of the simple arrangement of mechanism herein shown, consisting of weighted crank-shafts E E^1, elbow-links *d* d^1, and connecting rods F F^1, arranged and combined with the two parts of the gate B B and the driving-boards H H^1, as described.

No. 15,881.—Dennis E. Fenn.—*Improved Method of Opening and Closing Farm Gates.*—Patented October 14, 1856.

By turning the lever L to open the gate, the arm H and weight J move from H to h^1; and by opening the gate in a reversed direction, the arm and weight will move to *h*. In opening the gate from D to A, the

arm and weight in passing to *h* is raised up the incline of cam P, which raises the gate so that the latch N will be disconnected from the latch as soon as the gate is unlatched.

The inventor says: I do not claim lifting the gate so as to unlatch it by the same movement or device which causes it to swing open, as I am aware that such an arrangement is not new.

But I *claim* the cam P with its alternate elevation and depression, in combination with the arm H and double-jointed hinge G I, arranged and operating substantially as described.

No. 15,631.—Caleb Winegar.—*Improved Method of Operating Farm Gates.*—Patented August 26, 1856.

By pressing down the levers C, the rods and chains P and B operate upon the drum E, and turn it on the fixed shaft Q. The drum E is provided at its lower end with ratchet-teeth, which mesh into a ratchet-wheel F, fixed on shaft Q, and which is turned by the action of the weight K, turning the drum E in a reversed direction from that of the rods and chains B; by this motion the crank D is rotated, and the rod H operates upon chain and rod N in such a manner, that, by one-half of a revolution of the crank D, the latch-spring O is detatched, and the gate opened or shut.

Claim.—The method of opening and closing gates by means of the ratchet-drum E, the weight K, or an equivalent spring to draw back the said ratchet-drum through an intervention of the chains and rods B B, in the manner substantially as described.

2d. I claim my arrangement of rod and chain N connected with the spring catch, for the purpose of detaching the latch, in the manner substantially as described.

No. 15,518.—Chester Hunter and N. Isham.—*Improved Method of Raising, Lowering, and Operating Farm Gates.*—Patented August 12, 1856.

This gate can be raised or lowered, for the purpose of admitting small animals and excluding large ones. The bar H, and the gate attached to it, can be raised within the clasps C and D, and the bar J, pressed into the notches I by means of spring K, will slide into the upper notches I. By withdrawing the bar J from the notches I, the gate will descend by its own weight.

Claim.—The bars J J, spring K, groove I, and clasps C D, when arranged as described, and for the purpose set forth.

No. 14,351.—Elon Dunbar.—*Self-Acting Farm Gates.*—Patented March 4, 1856.

When a vehicle approaches the gate, the act of treading upon either of the flaps I depresses the same, and the end of the bent lever G below; which causes the catch M to draw the slat portion of the gate

down with it, and the rods F F^1 to raise the ends of the vibrating levers E E^1, the opposite ends being depressed, so as to vibrate the upper beams A, to which they are connected by means of rods D D^1, and to incline them and the railway B^1, (which has by the act of vibrating raised the main portion of the gate,) so as to cause the grooved wheel C to descend over said railway with the gate, when the spring-bolt O is detached from the notch in plate P on the side upright of the gate, to allow it to thus descend to open the passage way by the front wheel of the vehicle, depressing the levers Q on either side, or by the rings S being drawn upon the rider. As soon as the gate begins to open, the hook M^1 on the slat portion of the same is detached from catch M on flap I, and the said slat portion is drawn up into the main upper body of the gate by means of weight M. After the vehicle has passed through the passage way, the flaps I are raised, and the several levers vibrated on their fulcra to their original positions by means of counterpoise weight J, and the gate is closed by the wheel C descending the (now reversed) inclination of beam A, when the bolt O and hook M^1 will also be reinserted into their notches.

Claim.—1st. The combination of the vibrating beam A and railway B^1, with the lower bent and weighted lever G, upon which the flaps rest, and vibrating levers and rods for connecting them together, and the gate suspended on the railway; the several parts named being arranged and operating as herein set forth.

2d. Constructing the gate in two parts in the manner described, and suspending the lower part K^2 by the weighted lever N, so as to enable the flap I to draw said lower part downward during the raising of the upper main part, to prevent a space for the passage of small animals being formed between the flaps and bottom of the gate, as herein described.

3d. The combination of the series of parts, consisting of levers, rods, shafts, and radial arms for operating the spring-bolt O, with the suspended gate, as herein set forth.

No. 15,911.—Smith Young.—*Improved Fastening for Gates.*—Patented October 14, 1856.

The gate A being closed securely by the two catches D, it can be opened inward by pressing against the lever F, and thereby forcing the spring-catch D from in front of the stop *b*, when the gate is swung open in the usual manner. As the gate swings back to its original position, it strikes against the oblique face of catch D and causes it to recede, and thus allow the gate to escape by it.

Claim.—The employment of two pivoted spring-catches on the post B, in combination with a stationary central stop *b* and two hand-levers F F on the front edge of the gate, substantially as and for the purpose set forth.

No. 14,387.—William Butler.—*Improvement in Valves for Lock Gates.*—Patented March 11, 1856.

The main feature of this invention is the flange-valve A, it being so constructed and hinged on the slide-valve B, that in opening it by means of lever E and rod C, it presents a level surface upon which the water acts upon the wedge principle, and thus assists in opening the slide-valve B.

Claim.—The combination of the flange-valve A and slide-valve B, when said flange-valve A is hinged to the lower end of the valve B, and made to operate in the manner and for the purposes within described.

No. 14,456.—Joshua K. Ingalls.—*Improved Illuminating Grating.*—Patented March 18, 1856.

The nature of this invention will be understood from the engravings and claims.

Claim.—1st. The spheroidal lens or pane A, with rounded edge, set in grating or perforated plates B of wood or metal, as set forth.

2d. The grating of wood or metal with tapering apertures and glazed with lenses or panes, of the form, and in the method, and for the purposes set forth.

No. 14,355.—Daniel Fitzgerald.—*Improvement in Portable Houses.*—Patented March 4, 1856.

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. Constructing a house by inserting the weather-boarding ends into a channel E at the corner posts A B, substantially as described.

2d. The drawing together the parts of the posts A B to secure the weather-boarding, it being held up against A by nails or screws.

3d. The inserting the ends or tenons of the girders G into the channel E in such a manner that the weight of the chamber floor, roof, &c., may bear on the weather-boarding and press the joints together as it may shrink, or allow it to rise when it swells.

4th. The setting the girder in the same slot with the weather-boarding.

5th. Setting the floor-plank ends in a channel in the girders, or between the two halves of the girders, so that no nails are required, and so that the upper part of the girder will be the base of the room.

6th. The channelling the sides of the door and window frames so that the weather-boarding can be inserted or taken out without the use of fastenings.

No. 14,952.—Daniel Fitzgerald.—*Improved Mode of Constructing Portable Houses.*—Patented May 27, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—1st. The constructing houses of staves held together by hoops.

2d. Combining the staves in segments or parts of the periphery (some of which shall contain the doors and windows) to facilitate the putting up and taking down.

3d. Constructing the floors in segments, as shown in fig. 2.

4th. Sustaining the thrust of the roof by a hoop which also confines the staves.

No. 15,201.—William H. Thompson and Eustis P. Morgan.—*Improvement in Safety-Hatches for Warehouses.*—Patented June 24, 1856.

Claim.—An elevator, having arms or guides attached to the travelling car or platform, either above or below it, together with the sliding or hinged movable doors, which remain closed when the elevator is not in use, and are opened by the action of the car, or suitable attachments to the same, as it passes upwards or downwards through the several stories of the building.

No. 14,854.—John B. Cornell.—*Improvement in Continuous Sheet-Metal Surface.*—Patented May 13, 1856.

The shape of the edges of the strips is such as to form a dovetail-shaped groove for the reception of the mortar.

Claim.—A continuous sheet-metal lath surface, formed of united strips or sections *b b*, of the shape substantially as herein set forth.

No. 14,092.—Dewitt C. Cummings.—*Improvement in Lock-Gate Valves.* Patented January 15, 1856.

The brackets 4 are permanently attached to the lock-gate, and form the bearings for the horizontal shaft 2, which is secured in the bearings by a key or set-screw. The valve 1 oscillating on this shaft takes its bearing on its upper side, so that the sand settles away from the bearings and escapes through apertures 5.

Claim.—The arrangement and construction of valve or paddle-gates for canal locks, substantially as herein described, whereby the sand and grit in the water is washed and settled away from the bearings instead of accumulating therein.

Also, the stationary axis of the paddle, so secured to the framing that it may be turned when it becomes worn, so as to present a different portion of its surface to the bearing of the paddle.

No. 15,776.—George M. Ramsay.—*Improvement in Cast-Iron Pavements.*—Patented September 23, 1856.

This pavement is composed of hexagonal iron blocks, each block being provided with a leg at each corner; and when the blocks are joined, three legs of three blocks will meet at each corner of a pave; these legs are bound together by means of wrought or cast-iron bands, thus supporting each pave at six points in six different lines, thereby maintaining the form of a flexible arch without the aid of any support underneath, except at the ends of said arch.

The inventor says: I am aware that cast-iron voussoirs have been made into an arch for bridges and other purposes, and that the bond of connexion between has been effected by means of lugs on the voussoirs, and wrought-iron clips or bands passing over the lugs of the adjoining voussoirs. I therefore wish to be distinctly understood as not claiming broadly this mode of connexion of cast-iron blocks by means of lugs and clips; but I *claim* the iron hexagonal paving blocks, with legs or lugs below, as described, when united and secured by the iron clips or bands, so as to form the flexible pavement, as described.

No. 14,384. Pelatiah M. Hutton.—*Improved Mode of Constructing Cast-Iron Pavement.*—Patented March 4, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—I do not claim the use of cast-iron for pavements; nei the do I claim the hexagon or any specified forms of wearing surface, to be filled with gravel or any other material.

I *claim*, 1st, making an iron pavement of double thickness, or of two courses of iron plates, one resting upon the other.

2d. I claim fastening the two courses of iron plates together vertically by means of the three-way adjustable key, as shown at D, in fig. 2, or its equivalent.

3d. I claim attaching the two courses of iron plates laterally by means of the pins E cast on the upper surface of the lower plates, and the holes F cast through the upper plates corresponding thereto, as described, or their equivalents.

4th. I also claim the manner of forming and arranging the two courses of iron plates so as to produce the following results: that the joints formed by the edges with the upper course of plates are in no case parallel to the joints of the lower course of plates; and when the joints of the two courses of plates cross each other, they do so at right angles in all cases, substantially as described and shown in fig. 1.

No. 15,479.—Solomon B. Ellithorp.—*Improved Metal Pavement.*—Patented August 5, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

The inventor says: I do not claim the use of metal blocks for

pavements, nor the use of blocks with grooved arches without interstices between the arches, nor the use of cement, gravel, or sand, to fill the interstices of metal blocks for pavements.

But I *claim* a metal block for a pavement formed of a series of groined arches A, alternating in position and connected to ridge or string-pieces B, with interstices D between the arches, to be filled with cement, gravel, or sand, as herein described.

No. 14,736.—Asa P. Robinson.—*Improvement in Cast-Iron Pavements.*—Patented April 22, 1856.

The nature of this invention will be understood from the claims and the engravings.

The inventor says: I declare that I do not claim the application of cast-iron to the purposes of a street pavement or a street railway; neither do I claim pavement blocks of a cylindrical form, or with any particular form of surface.

But I *claim* the cylindrical form with the tangential flat surfaces raised upon its circumference for contact between the blocks.

And I also claim the peculiar manner of keying the blocks together and of keying the blocks to the rails to prevent vertical motion, and to admit of any one block or rail, or any number of blocks or rails, being moved without disturbing others not required to be moved, by means of the triangular formed spaces I, the rebates F, and the keys fig. 4, or by means of the projecting surfaces of the blocks A and the flanges or lugs on the rails D, figs. 3 and 5, and the key fig. 2, or any similar arrangement.

No. 14,054.—Thomas Davidson, jr.—*Impr vement in Street-Paving Machines.*—Patented January 8 1856.

Motion is imparted to the shaft G, and by shoving the pinion J on the shaft C in gear with the wheel L a rotating motion will be imparted to the shaft P, and the arms *c* of the lifting-wheel Q will raise the shafts R S and rammers T, which fall upon the stones and drive them into the ground. At each revolution of the shaft G the eccentrics U and V actuate the pawls *h* and *i*, only one at a time, as one of the pawls is always thrown out of gear; and if the machine is to be moved forward, the pawl *i* will move the ratchet X; if it is to be moved backward, the pawl *h* is set in gear with the ratchet W. By turning the bar *z* and the hooker-fingers *m* underneath the projections *f* on the shafts R S, the rammers may be kept suspended; and by shoving the wheel E in gear with the pinions C I, and the pinion J out of gear with the wheel L, the machine may be driven along from one place to another by the motive power employed to operate the rammers.

The inventor says: I do not claim separately, the rammers T, operated by the lifting-wheels Q, for this is a well-known device, and used in many cases for pounding, crushing, &c.

But I *claim* the rammers T, operated by the lifting-wheels Q, in com-

bination with the ratchets W X and pawls *h i*, arranged as herein shown, whereby the machine is moved along, either backwards or forwards, as the rammers perform their work.

I further claim the arrangement of the gearing E C I, as shown, whereby the motive power employed to operate the rammers may, by adjusting the wheel E, be employed to drive the machine from place to place when the rammers are not in operation.

No. 14,716.—Abraham Fitts.—*Improved Machine for Digging Peat.*—Patented April 22, 1856.

Having laid the truck A A alongside of where it is to dig, the digger is brought to its proper position by means of car E and crane H. Having cut the desired depth, on raising the digger the knife M catches by its adhesion to the uncut peat and turns under the ends of the others, cutting off the bottom and holding the whole between the blades *i i*, the knife M being in the position shown at J fig. 2; then raising the digger with its load up, and swinging the crane round so as to bring it over the mixer, and pulling the cord 7, it turns the knife M from under the peat and allows it to fall into the hopper W, when the crane may be swung back and another cut taken, advancing the cars as often as necessary for convenience in cutting.

The inventor says: I am aware that cranes are in common use and are old; therefore, I do not claim these as such.

But I *claim*, 1st, the movable knife or fork M.

2d. I claim the digger, consisting of two or more blades, in combination with a movable knife or fork, to cut the third side or sides.

3d. I claim the combination of the digger, the crane, and the platform or cars to hold them and receive the peat.

No. 14,502.—J. W. Hoard.—*Improved Pile-Driver.*—Patented March 25, 1856.

f is a piece of India-rubber, placed between the two parts *e* and *d* of the hammer B. By this arrangement the upper and heavier part *e* does not act with its full force directly upon the pile, but follows up the blow of the lower part *d*.

The inventor says: I am aware that in direct-action steam hammers an India-rubber packing has been introduced between the hammer and piston-rod, to avoid injury (on the hammer striking) to the piston, cylinder, and machinery. Also, that the piston-rod has been provided with a helical spring, and the hammer or block at the limit of its top stroke been made to hit a padded spring beam to prevent injury and assist the return hammer. But in all such cases has the striking block proper been made of a solid character; none of such, therefore, or the mere application of a spring to a hammer (irrespective of its arrangement) do I claim; but I do *claim* the sectional "ram" B of the driver, constructed substantially as described, for operation in the manner specified.

No. 15,099.—Charles E. Flagg.—*Improvement in Platform-Supporters.*—Patented June 10, 1856.

The bar A being secured to the roof B, the slide-bar C, with the bearers E hinged to it at *f*, may be moved upward between the guides *b b*, as required, said bar being secured in position by means of rack D and notches *e e e* cut in the bar A.

Claim.—The improved platform-supporter or combination of the fastening-bar A, the slide-bar C, the bearer E, and the strut F, as applied together, and to be used substantially in manner and for the purpose as above specified.

No. 14,520.—Junius M. Sampson.—*Improved Post-Driver.*—Patented March 25, 1856.

The weight L is raised by means of handle O, pinion A, wheels B and C, drum I, and pulley *d*. The moment the weight is raised, the wheel B clears the cogs of C, (a portion *a* a^1 of the wheel B being cut out,) and the weight descends.

D is the segment of a wheel corresponding to the portion *a* a^1, which is placed on the side of B, in order to form a continuous gearing with A.

Claim.—The segmental wheel B, constructed as described, in combination with pinion A and wheel C, operating the drum I upon the shaft C, substantially in the manner and for the purposes set forth.

No. 14,868.—James R. Hilliard.—*Improvement in Lock-Joint for Railroad-Bars.*—Patented May 13, 1856.

The object of this invention is to unite the sections of rails by a compound lap-joint, so disposed that, whilst the joints give freedom of end play, they admit of separation without the use of screw-bolts, wedges, &c., and with no further fastening than by spikes to the cross-ties.

Claim.—The combination of the several laps, substantially such as herein described, and consisting of, first, the lapping each against the other along a central, longitudinal, vertical plane *a*, or nearly so.

2d. Lapping each on to and under the other on planes *b* b^1 parallel, or nearly so, with the longitudinal axis of the rail.

3d. Making the surfaces where each laps on and under the other, inclining downwards from each side of the rail towards the central, longitudinal, vertical plane of division of the joints.

No. 14,870.—William J. Holman.—*Improvement in Compound-Rail for Railroads.*—Patented May 13, 1856.

The three bars of the compound railroad bar are held together by but one bolt-hole *x*, or series of bolt-holes, for the several waves *a* in the one bar, admitting of perfect freedom of contraction and expansion, and allowing of the speedy removal of the inner bar. The waved form of the flange *a* admits the rail bearings to be arranged at great distances apart, while they secure strength as regards amount of material used.

Claim.—The extension at sundry points throughout its length or lengths by waved or irregular formations of the stem or flange *a* of the cap bar of the tripa tite rail below, and through or beyond the bottom surface of the two side or chain rails B, and in connexion and combination therewith by key or wedge C passing through the one rail only from below, for the purposes set forth.

No. 14,886.—Samuel Richards.—*Improvement in Snow-Plough for Railroads.*—Patented May 13, 1856.

The nature of this invention will be understood from the claims and the engraving.

Claim.—The construction of a snow-clearer of a simple rising inclined plane A B, in combination with the curved pieces at F, so arranged that the snow shall be gradually raised at or near to the surface of the surrounding snow, and then discharged over on the top of it, substantially as described.

2d. I claim the employment of a series of pipes or other heating apparatus in the interior of a snow-clearer, for the purpose of diminishing the adhesion of the snow to the upper surface of the clearer.

No. 14,267.—C. C. Hoff, assignor to E. P. Russell.—*Improvement in the Construction of Mastic Roofing.*—Patented February 12, 1856.

The canvass is to be passed through a hot solution consisting of one barrel of pitch, one gallon of rosin oil, and ten pounds of ground plaster; the whole having been well boiled, the canvass, while warm, is then passed through the flour of soap-stone, and then spread on the roof. The covering cement consists of eighteen gallons of gas tar, one gallon rosin oil, one gallon refuse oil of turpentine, one and a half pound copal gum, twenty pounds mineral paint, and ten quarts flour of charcoal. Finally, a smaltzing of sand is to be spread upon this cement covering.

Claim.—Preparing the canvass with the soluble and earthy matters in the manner set forth, and then covering the same with tarry, resinous material and carbonaceous compound, in the manner and for the purpose set forth.

No. 15,988.—William H. Trissler and John Stewart.—*Improved Mode of Securing Sheet-Metal Coverings for Roofs.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—We claim the double lapping joint *c* for uniting the sheets of metal without solder, substantially as described.

Also, the combination of the scroll and wing edges *a b* for uniting the strips of covering, substantially as specified.

No. 15,476.—Charles H. Dana.—*Improved Sash-Supporter.*—Patented August 5, 1856.

The roller D turning on a pin *a* of a lever C is inserted into a recess in the sash, said recess being formed of inclined planes *d;* and the roller, by bearing against said planes and the window-frame A, supports the sash B. If it is required to move the sash, the lever C is set into an horizontal position, as represented in the illustration.

Claim.—The lever C with the roller D on axle or pivot *a*, arranged and operating in the inclined groove *d*, as described, and for the purpose set forth.

No. 15,557.—Charles S. Bruff.—*Improved Sash-Supporter.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The application of the above described rack B, corrugated in the particular form described, to one edge of a sash A, and a metal spring F catching into said corrugations secured in the jambs or on the stop-bead, as before mentioned, for the purpose of holding up window-sash at any desired elevation.

No. 15,390.—J. W. Rodefer.—*Improved Scaffold for Shingling Roofs.*—Patented July 22, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Constructing the scaffold, as shown, viz: having the platform A hinged to the sleepers or string-pieces *b*, and having segment braces B attached to the sleepers or string-pieces; the braces having holes *d* made through them and passing through the bars *a* of the platform, whereby the platform, by means of pins passing through the holes *d* in the braces, may always be adjusted in a horizontal position, whatever the pitch or inclination of the roof may be.

No. 14,764.—John M. Dearborn.—*Improvement in Scaffolding.*—Patented April 29, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—The improvement in the construction of movable scaffolds, which consists, first, in constructing the upright standards *a a* of two planks or boards, leaving a space between them; in which spaces the ledgers *c c* can be moved up or down and secured in any desired position.

I also claim constructing the upright standards, with tenons on the top, which fit into the bottom space, strengthened by an iron sleeve between the planks of the upright standards of the next upper section, whereby I am enabled to extend the staging vertically.

No. 14,156.—CHARLES FOSTER.—*Improvement in Scaffolds.*—Patented January 29, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim, separately, either of the several devices constituting the scaffold herein described; but I *claim* a scaffold consisting of the combination of the adjustable uprights A A A, the movable brackets B B for supporting the foot-board, and the horizontal adjustable ties D D, the same being arranged, combined together, and operating as described, and also held or secured in a perfectly steady position near the building which is to be repaired or painted, without direct contact with the wall of the same, by means of the jacks E E and the braces F F, constructed, applied, and operating substantially as set forth and described.

No. 14,809.—JOHN GUSTINE and J. M. RANKIN.—*Improved Road-Scraper.*—Patented May 6, 1856.

If the scraper is to be unloaded, the pin G is withdrawn, and the upper beam E slides through the bands H H, thus loosening the chains D and allowing the scraper to turn.

Claim.—The beam E sliding through bands H H upon the tongue B, attached by the chains D to the scraper, and operated and made fast by withdrawing or inserting the pin G. or its equivalent.

No. 14,817.—MATHEW S. KAHLE.—*Improvement in Dumping-Scrapers.*—Patented May 6, 1856.

When the scraper is to be unloaded without stopping the machine, the handles F are removed, the rod *b* is pushed forward to release the catches *e e*, the front of the scraper drops and catches against the ground, whilst the machine, still moving on, pulls over the body D, the axle C turning in its wheels to admit of this. The machine continuing to move on, the rear of the body is thrown down, and catching against the ground turns it around again in proper position, and so on.

Claim.—So attaching the body of the scraper D permanently to a bent axle C, supported in a pair of wheels, as that said body may be dumped and returned back to its original position, and ready for its next load, without stopping the horses or changing their direction.

No. 14,050.—IRAH CHASE, jr.—*Improvement in Scuttle Covers.*—Patented January 8, 1856.

The rim A is bedded into and flush with the side-walk; the cover B is hinged to it by means of hinges I. The ring C is hinged at E E to the cover B. When the cover is raised, it will be held in its proper position by the hoop C, being supported by prop D. H is a little pro-

jection welded or riveted to the hoop C, so that when the cover is shut down, it will drop under the ear G, and form an automatic hasp, rendering it impossible to raise the cover from the upper side.

Claim.—What I claim as my invention, and desire to secure by letters patent, is—

1st. Hanging to the cover B a circular hoop C, constructed substantially as described, in combination with the prop D and receiving hole E, operating as set forth.

2d. The arrangement by which the cover is fastened down—that is, by making the projection H of the hoop C and the ear G operate as an automatic latch, substantially as described.

No. 14,185.—John Cook. | *Improvement in Lugs for Cast-Iron Shingles.* Patented February 5, 1856.

The inventor says: I do not pretend to have invented cast-iron shingles, or giving them any particular form or external shapes; nor do I claim them with the rib *a*, or the half-round flange *b*, or the lap *c*, or the elevation *g*, as all these contrivances have been heretofore in use.

But what I *claim* is, the projection *e*, with the nail-hole *f* on the under side of the shingle, for fastening the same to the rib, either on its upper or lower edge, at choice, and for securing the nail from the wet, thereby preventing it from rusting and becoming loose.

No. 14,798.—Charles S. Bruff.—*Improvement in Double Panel Shutters.*—Patented May 6, 1856.

The stationary part of the shutter is composed of the stiles *a*, top and bottom rails *b*, and back panel *c;* the movable part is the front sliding-panel *d*, the rails and stiles being grooved to receive the panels. The back panel is pierced with openings, so that when the sliding-panel is moved the distance of the size of the opening in the direction designed, the openings of one panel will correspond with the openings of the other.

A proper allowance is made in the grooves to accommodate the wire netting, which is inserted between the sliding and stationary panels, and of such size as will remain stationary in its position.

The inventor says: Being satisfied that the construction of double panel shutters and the application of wire netting as a mosquito-bar are not my invention, I do not, therefore, claim either of them separately as such.

But I *claim* the combination of the double panel shutters, with the wire netting inserted *between* the panels, as an effectual bar against the admission of mosquitoes or other insects into buildings, and sparks and cinders into railroad cars, &c.

No. 14,021.—Moses W. S. Kendall.—*Improvement in Smoke-Houses.*—Patented January 1, 1856.

The smoke generated by the fire in the closed space A escapes through the apertures *n* of the vault *j*, thence passes out at the open ends of the furnace as it is arrested by a second solid vault, and passes around the meat to be smoked. The meat hangs above the metal roof *i*, and the grease which might drop down is collected in the gutters of the roof, and flows through the pipe into the receiving vessel *r*.

Claim.—What I *claim* as my invention, and desire to secure by letters patent, is, the smoke furnace, or its equivalent, and its application to smoke-houses thereof; which will prevent the fire from reaching the meat, or the grease from reaching the fire, thereby preventing damage and destruction to the meat and smoke-house.

No. 15,647.—John F. Driggs.—*Improved Street-Sprinkler.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

The inventor says: I am aware that fixed perforated pipes have been employed for the purpose of sprinkling in many branches of manufacture, and that waste-cocks have been provided in shower-baths, which open and drain the pipe with the closing of the main cock or valve. But I am not aware that any have attempted to employ such for the purpose of watering streets, or have ever attempted so to construct and connect an awning-pole or a sign-pole that it may serve this purpose.

I *claim* the peculiar arrangement of the perforated and slightly inclined pipe A, in connexion with the uprights C and B, or with equivalent brackets from the neighboring building, and with the valve D, the waste passage F, and the water-main E, when arranged in such a manner that it may serve the double purpose of supporting awnings, signs, lamps, &c., and of rapidly and effectually sprinkling the streets.

No. 14,341.—Timothy Alden.—*Machine for Sweeping Streets.*—Patented March 4, 1856.

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. The arrangement and use of the sliding-boxes *k*, springs *o*, and levers *l*, in combination with the broom-handles and crank-shaft, substantially as hereinbefore set forth, for the purpose of making the brooms self-adjustable, under all circumstances, to overcome the inequalities of the pavements to be swept.

2d. The use of the guard-board *q*, arranged longitudinally of the machine, for the purpose of collecting the dirt in wind-rows, in combination with the brooms for sweeping the dirt against the said guard-board, substantially as hereinbefore set forth.

3d. The use of the collecting and elevating wheel *s*, in combination

with the guard-board *q* and revolving brush *r*, arranged and used substantially as set forth and for the purposes described.

4th. The use and arrangement of the shield-board *u* for the purpose of holding the dirt within the buckets of the collecting and elevating wheel till ready to be discharged therefrom; hopper-boards Y and endless carrying-band *w*, in combination with the collecting wheel; the said combination of parts arranged and operating substantially as hereinbefore set forth.

No. 14,512.—Joseph Miller.—*Machine for Sweeping Streets.*—Patented March 25, 1856.

The nature of this improvement will be understood from the claim and the engravings.

Claim.—Arranging the main driving-shaft U, its clutch-lever Y, and clutch X, in the upper and front part of the cart-body A, in order that the shaft may not only be unobstructed by the earth piled in the body, but have its clutch-lever disposed within easy reach of the driver.

No. 15,253.—D. H. Richards.—*Machine for Sweeping Streets.*—Patented July 1, 1856.

One end of arm G enters the spiral cam groove *f*, while the slotted end receives the pin *i* of arm F. As the carriage proceeds, (the cylinder B being clutched with the shaft B,) the brush E is vibrated from side to side. In order to throw all the dust outwards into one row, the plate L is placed in either of the positions represented in dotted lines, (fig. 3,) so that the end of the brush-lever, when moving in one direction, passes over the plate, but when returning it is guided down under the plate, and the brush is thus raised up from the pavement.

Claim.—The brush E, operated by means of the cam groove *f*, in the manner substantially as set forth.

2d. The plate L, operating in the manner substantially as herein set forth, for the purpose of raising the brush upon the return stroke when sweeping at the sides of the streets, as described.

No. 15,710.—Robert A. Smith.—*Machine for Sweeping Streets.*—Patented September 9, 1856.

This machine is attached to the rear of an ordinary cart. The rotation of the large spur-wheel G gives motion to the shaft *g*, producing movement of chain *b*, and rotating main brush-cylinder B. This sweeps the dirt directly upon the endless conveyor *z*, and the dirt thus carried upwards falls into the cart. Meantime the gutta-percha brush B, adjusted to the proper inclination, revolves by a chain connexion a^1 with the main brush, and, by reason of the spiral arrangement of its broom, carries the dirt from the gutter into the path of the main cylinder-brush. The gutter-brush is adjusted by means of the box *y*, screw *t*, and guides

x, and prevented from moving in any other manner than rotating on its shaft.

Claim.—1st. Placing the main broom-cylinder under the axle of the travelling wheels, substantially as and for the purposes set forth.

2d. The curved guides *f* of broom-cylinder axle, concentric with the driving-pulley, for keeping the driving-band tight in all portions of the said cylinder.

3d. Hanging the conveyor on its driving-shaft, with its lower extremity resting on wheels running on the surface of the ground, as specified.

4th. The arrangement of screw, box, and guides, with the shaft of the gutter-brush, for regulating the inclination and preventing the oscillation of said brush, as specified.

5th. The combination of the cylinder-brush and gutter-brush with the elevator, arranged and operating substantially as specified.

No. 14,651.—J. B. Creighton.—*Improved Stump Extractor.*—Patented April 14, 1856.

By turning the sweep O, the nut F will turn, and consequently cause the screw to rise, whereby the stump is drawn out of the ground. The balls in the grooves support the upper plate *i* and nut F above the bearing-plate *h*, to prevent friction.

The inventor says: I do not claim the use of balls running in grooves for the purpose of destroying friction; but I *claim*, 1st. The combination and arrangement of the vertical screw, the nut, and the rollers, with the bearing-plate and frame, substantially as described and for the purposes specified.

2d. I do not claim the use of the wheels or levers, or any of the parts, separately; but I *claim* the lever H, carrying a wheel, in combination with the frame, so as to expedite and facilitate the transportation of the machine; the whole being constructed and arranged as described.

No. 14,830.—Solomon W. Ruggles.—*Improved Machine for Extracting Stumps.*—Patented May 6, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The lever frame *c*, operated by the lever G, pawls *f* H, ratchet F, and strap E, when the above parts are attached to the sled A, and arranged as shown, and used in connexion with the frame or strut I for the purpose specified.

No. 14,937.—George W. Zeigler and Manasseh Grover.—*Improved Mode of Extracting Stumps.*—Patented May 20, 1856.

When the tree begins to fall, the chains *i* i^1 tighten, and the weight of the tree lifts the roots *r*, extracting the stump as the tree falls.

The inventors say: The several parts of this apparatus may be varied in many respects without changing the principle of action; this right of change we therefore *claim*.

Without claiming the separate parts of our apparatus, we *claim* utilizing the weight of the tree, while falling, for extracting its stumps, by the combination of chains *c i* and hooks *f f*[1] and adjuster *n*, substantially as herein set forth.

No. 15,537.—William O. Thompson and Leonard Harrington.—*Improved Mode of Extracting Stumps.*—Patented August 12, 1856.

The lever A of the fulcrum C is placed over the stump B, and the root E being connected by means of a chain D to lever A, said lever is operated upon by a chain F from windlass H, which latter is operated by the power applied to the rope on the tackle K.

The inventors say: We do not claim the use of a lever and pulleys, or their application to our machine.

But we *claim* the combination and arrangement of lever A and gallows-frame I, in connexion with the pulleys or power applied, when constructed and operating in the manner and for the purposes set forth and described.

No. 15,566.—William H. King, assignor to Himself and Isaac Hyneman.—*Machine for Sweeping Gutters.*—Patented August 19, 1856.

Motion is imparted to the revolving brush from the driving-wheel A by means of the cogged wheels F and G, pulley I, cord L, and pulley J. The journals of the brush K are supported in brackets M, which are so placed on the frame of the carriage as that the shaft of the brush shall stand oblique to the frame. This obliquity is designed for getting the brush close into the curb, and conveying the sweepings out towards the centre of the street. But this would be imperfectly done, were it not for the guiding or directing board N in front of the brush, against which the sweepings are thrown, and by which they are more readily brought into a wind-row at the side of the machine.

Claim.—The combination of the skewed revolving brush and guiding board, arranged, located, and operating together substantially as described, for the purpose of making a side or gutter sweeping machine, that will leave the sweeping in the wind-rows, as set forth.

No. 14,264.—James Whitcomb.—*Improvement in Railroad Switch.*—Patented February 12, 1856.

The two rail-bars *a* and *b* of the switch are of unequal length, and are connected together at *c;* so that when the pressure of the flange of the wheel acts on the outside of the long switch-bar, (when a car is passing out of the switch,) the switch-bars will be moved to the right position to allow the cars to pass on to the main track. The

switch-bars may be held to their place by a spring or counter balance weight.

Claim.—The enlargement, substantially as described, for the long switch-rail, when connected with a short switch-bar.

No. 14,180.—Charles H. Bush.—*Improvement in the Bell Stench-Trap.*—Patented February 5, 1856.

This is an improvement upon the ordinary stench-traps which have their cups D attached to the plate E. In these, when water is poured directly into the waste-pipe H, both the plate E and cup D require to be removed, and the funnel G inserted in the upper end of tube C, which, of course, allows the effluvia to escape into the apartment in which the sink is placed. Such is not the case in this improved arrangement.

The inventor says: I do not claim as new, in themselves, the perforated plate or grating, and bell or cup, with surrounding chamber and central exit pipe, arranged as described, to form in combination a stench-trap for sinks, as such is old, and commonly known as the bell stench-trap; but I do *claim* providing the said grating or perforated plate E of the sink with a funnel-neck or tube F, arranged centrally over, or in combination with, the bell or cup D, made separate or detached from the grating for operation together, as shown and described, for greater convenience in the use and better cleansing of the trap, with total exemption from escape of effluvia in the apartment wherein the sink is placed, under every use of the trap, by funnel or otherwise, as set forth.

No. 14,755.—Ira Merrill, assignor to Himself and Arthur Maxwell.—*Improved Machine for Tunnelling and Quarrying.*—Patented April 22, 1856.

Attached to the posts B^1 B^2 B^3 of the secondary frame are the proportionate levers D^1 D^2 and the cross-bar D^3, connected by the vertical bars D, which, being operated by the crank-wheel E, cause at each revolution of the crank-wheel E an alternate elevation and depression of the secondary frame B, which latter has attached to it the chisels C and the vertical slide-rods *a*.

The inventor says: I do not claim the working of rock in quarries or "tunnelled avenues" by means of serial grooving, nor the construction of a machine for such purpose, nor the cutting of duplicate grooves by the rearrangement of the working parts of such machine upon each side of its principal frame alternately.

But I *claim* the arrangement of the proportionate levers D^1 D^2.

No. 14,483.—Charles Wilson.—*Improved Machine for Tunnelling Rocks.*—Patented March 18, 1856.

The cylinder *d* being immovably fixed by the jack-screws *e e*, the second cylinder *f* cannot turn therein on account of its feathers (see

fig. 4), but simply slides out, carrying with it the cross-head *l*, arms 15, shafts K *i i* and *h*, and also the drum C, shaft *g*, and parts attached, moving forward simultaneously; as the cutter-wheel D is now rotated, the drum C and shaft *g* are slowly rotated by means of the pinions and gears 11, 12, 13, 13, 14, 14, 17, and 18, 18, causing the cutter-wheel to act in its semi-spherical end in a series of nearly radial lines relatively to the axis of the tunnel. The screw *n* may be turned in either direction by a gearing and the auxiliary shaft *i;* 20 is a worm pinion driven by a key and slot in the shaft *i*, and confined in its place by the supports 21 of the shaft; *m* is a wheel with a second worm 22 to a wheel 23 on the screw *n;* by this means the screw *n* can be rotated in either direction, according to the twist of the worm pinion 22.

The inventor says: I do not herein claim a revolving or rolling cutter in itself, as this has before been used for a variety of purposes; but I am not aware that a concave or short, hollow, truncated conical cutter for cutting stone or similar material, has ever before been made use of. Thereby I am enabled to use much thinner steel than if the cutter were a flat disk; because the slightly conical form stiffens and strengthens the cutter so very much, and therefore said cutters are of less cost and require less material ground away to keep them sharp, and also allow of the head holding the same being within the cutter, so that the head will not touch the rock, even when the cutters are worn away almost as small as said head, and the cutting edge also will remove the stone on either side of the cutter, thereby providing for cutting off the centre core of the tunnel.

I am also aware that cutters have been set on arms or wheels to cut by an alternating or semi-rotary motion, therefore I do not claim the same, neither do I claim a continuously revolving cutter-wheel in itself; but I am not aware of any machine having heretofore been constructed with a continuously revolving cutter-wheel, having cutters attached thereto at an angle of 45°, or nearly so, with the shaft of the cutter wheel, and alternately in opposite directions, and acting in the semi-spherical end of the tunnel with a continuous cut of two offsets, as set forth; thereby I have a continuous motion, and avoid the loss of power by any alternate motion consequent on overcoming the inertia of the ponderous apparatus. I am also aware that rolling cutters have been adjusted by screws, therefore I do not claim the same; neither do I claim the compound feeding motion in itself, as this is well known; my invention simply relating to the peculiar cutter-wheel, and its action when receiving this compound motion.

What I *claim* is, 1st, the circular cutter *t*, formed as a short, hollow, truncated cone for acting on stone or other material, substantially as and for the purposes specified.

2d. I claim a continuously revolving wheel D, provided with circular rolling disks or cutters E, the axes S of which cutters stand alternately in opposite directions, or nearly at an angle of 45 degrees, with the shaft h^2 of said cutter-wheel, thereby acting to excavate the rock or other material, substantially as specified.

3d. I claim the arrangement of the alternating inclined tapering

planes *o o* and stocks *p*, for the purpose of sustaining and adjusting the alternate rolling cutters, as specified.

4th. I claim the construction of the shaft *s*, cylinder *q*, and parts attached, when used in connexion with the socket 29, set-screw 30, and binding-strap 31, for the purposes and as specified.

5th. I claim the general arrangement of the cylinders and shafts *d*, *f*, *g*, *h*, *i i*, *k*, and *k k*, and gearing attached, for rotating the drum C, and pressing the same forward, in the manner substantially as specified.

No. 14,281.—John B. Cornell.—*Improvement in Vault Covers.*—Patented February 19, 1856.

The gutters *b* serve to carry the water off.

Claim.—The flat-faced panes of glass *a* secured in positions that bring their exposed surfaces flush (or a little above) the upper faces of the bars of the metallic frame, when said bars have grooves *b* between their said upper faces, which form gutters around the panes of glass, for the purposes herein set forth.

No. 14,680.—William D. Titus.—*Improvement in Vault Covers.*—Patented April 15, 1856.

The cross-bar C is pivoted at *a*, so that it may be moved out of the way when required. The vertical stem G of the vault-hole cover F is provided with two recesses *e e*, in which two pivoted spring-catches *f f* are fitted. When it is desired to raise the cover, the lever H is swung up by means of cord I, whereby the prongs of said lever force the spring-catches *f f* into the recesses *e e*.

Claim.—The combination of the pivoted cross-bar C attached to the underside of the top of the vault, and the spring catches *f f* fitted to the stem projecting from the underside of the cover F.

I also claim the employment of the hinged forked drop-lever, arranged and operated substantially as described, for the purpose of releasing the spring-catches, as set forth.

No. 16,161.—Thomas Floyd, assignor to Himself and George H. Merklin.—*Improvement in Vault Covers.*—Patented December 2, 1856.

The cover A with guides D passes down in the grooves *e* until the notches in said guides come parallel with catches *d*, when they spring into the notches and fasten down the cover, rendering it impossible to open the vault from above. By pulling the cords *k*, the catches *d* and springs *b* will be pressed back, when the spring *h* presses up the cover, leaving a sufficient space open for light and air. If required, the cover can then be entirely removed and replaced again by simply pressing it down.

Claim.—The guides D working in grooves *e*, in combination with cross-bar *f*, spring *h*, and rod *g*, for the purpose of elevating the cover, as described. Also guides D, in combination with catches or bolts *d* and springs *b*, for fastening the cover down, as described.

No. 15,474.—WILLIAM S. CARR.—*Improvement in Water-Closets.*—Patented August 5, 1856.

The nature of this invention consists in the peculiar construction of the cock, which is opened by the motion of the seat *u* of the water-closet, and allows but little water to run into the pan *r* of the closet, until the weight is removed from the seat, when the cock, gradually closing of itself, allows the water to run for a limited and regulated time, sufficent to wash out the basin. Also, in the use of a peculiar arrangement of the lever *p* and latch *l* in connexion with said cock, to throw and empty the pan *r* of said water-closet.

The inventor says: I am well aware that cocks have heretofore been fitted in such a manner as to avoid any sudden motion in either opening or closing; therefore I lay no claim to so doing. I am also aware that a given amount of water-leakage has been used to prevent a sudden motion in cocks, balances, meters, and a variety of other instruments; therefore I do not claim the same.

I *claim* the valve *g*, with its cylinder 3 and openings *x*, constructed and acting in the seat 2, in the manner and for the purposes substantially as specified.

I also claim the cup leather *m* in the cylinder *k*, fitted with the required amount of water-leakage, when combined with said valve or cock *g x* 3, and spring *i;* the whole constructed and operating substantially as specified.

I also claim unlatching the pan *r* from the lever *p*, to empty the contents thereof, and then retaining said pan in its depressed position while being washed out, by providing the notch 10, pin 11, and hook 12; the whole constructed and acting in connexion with the gradual motion of the stem *h* of the valve, substantially as specified.

No. 15,758.—BENAJAH C. ENGLISH.—*Improved Mode of Adjusting the Slats of Window-Blinds.*—Patented September 23, 1856.

The parts, as represented in the illustration, after being attached in their respective places upon the window-frame and blind, are operated in the following manner: By shutting the blind, the rack T is brought in connexion with the gear-wheel A; and by pulling the knob G slightly towards the operator, it releases the clutch J from the clutch-pins K; the knob G can be turned now, communicating motion to the gear-wheel A, which gives motion to the rack T, thus causing the slats of the blind to move. The slats can be held firmly in any desired position by releasing the knob G, when the spiral spring I will throw the clutch J upon the clutch-pins K, and stop the motion of wheel A.

Claim.—1st. The manner of adjusting the slats of window-blinds by the use of the gear-wheel and rack.

2d. The method of fastening the slats at any required angle by the use of the clutch.

3d. The whole in combination, as set forth.

No. 15,000.—JOHN CASEY.—*Improvement in Window-Frames.*—Patented June 3, 1856.

By pressing the lower sash B sidewise, so that the side of the sash will press inwards the part C of the stile, the opposite side of the sash may be brought out free from the bead on the opposite stile, whereby the lower sash will be detached from the casing. To detach the upper sash B^1, it is brought down to the lower part of the casing, and taken out in the same manner as B.

The inventor says: I do not claim having a portion of one of the stiles made adjustable or movable, irrespective of the arrangement of the same, or the manner in which said portion is operated.

But I *claim* having the portion C of one of the stiles *e* of the casing provided with curved slots *h* at its upper and lower ends, and having lugs *i*, which are attached to the stile, fit in the slots *h*, whereby the part or portion C is rendered adjustable, as shown.

No. 15,578.—FRANCIS E. SESSIONS.—*Improved Window-Sash.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

The inventor says: I do not claim the principle of connecting two pieces of metal by casting metal on both while they are in a mould; nor do I claim making a window of separate bars, united by brazing, soldering, or riveting them together, when they abut against one another.

But I *claim* the described new or improved combination or manufacture of window-sash, as made not only of rebated and tenoned side and cross-bars, but of separate rebated corner-pieces, or combinations, cast in manner as specified on the tenoned ends of said bars, and not only constituting rebated angular continuations thereto, so as with said bars to complete the sash-frame, but serving to connect the bars together, in manner as explained.

No. 14,744.—ALFRED SPEER.—*Improved Weather-Strip and Lock for Windows, &c.*—Patented April 22, 1856.

By moving the pin I in the curved slot J, the rods F F^1 are caused to rise and shift the position of the links G G G^1 G^1, whereby the weather-strip E is caused to rise and E to descend, and enter the grooves C C in the top and bottom of the sashes.

The inventor says: I am aware that hinged flanges have been attached to doors and door-frames so as to operate by the door-knob, and to produce the double effect of a weather-strip and lock; I therefore do not claim all contrivances that produce this double effect.

But I *claim* the combination and arrangement of the devices for operating a weather-strip or strips to effect the double purpose of a weather-guard and lock at the same time.

No. 15,447.—CROMWELL P. WEAVER.—*Improved Mode of Hanging Window-Sash.*—Patented July 29, 1856.

The sliding-bars D and E being placed in the recesses formed on the inside of the jambs, and the cords connected to the same, as represented in the illustration, the two bars are first slid up to the top, as seen in fig. 3. The sash F is then put into place by inclining it so as to catch the metal strips *e e;* it is then easily pushed home, so that the bottom of the sash rests on the strip *f;* the sash G is now connected to the sliding-bar F in a similar manner, and the points of the spring latches *m* allowed to catch into the holes in the strip *j*.

The inventor says: I do not claim the employment of a single weight for the balancing of sashes; but I *claim* the employment, in connexion with window-frames and sashes, of the sliding-bars D and E, the same being arranged and constructed substantially in the manner set forth, for the purpose of removing and replacing said sashes with facility.

No. 15,528.—JOHN SHOPLAND.—*Improved Spring-Pulleys for Window-Sashes.*—Patented August 12, 1856.

The spring-pulley B is hung in the frame A; it is open at one end, and contains a coiled spring *e* wound upon drum *c*. On the face of the closed end of the pulley-wheel B is cut a cam-groove *f*, of a helical form, in which a small stud *i* in the bar *d* takes. The bar *d* passes through suitable openings in the arms *a* a^1, its lower end resting upon a spring *n* fastened on the underside of the lower arm a^1. When the pulley-wheel is turned so as to wind up its enclosed spring *e*, the stud *i* and bar *d* are carried by the helical groove *f* towards the spring *n*, the end of said bar pressing against said spring, so that one spring shall compensate for the increasing power of the other one as it continues to be wound up.

Claim.—In combination with the pulley and spring the self-acting compensating brake for holding the pulley at any fixed point, regardless of the increased power of the coiled spring as it is wound up in drawing down or raising up a sash, door, or other thing to which it may be attached, substantially as described.

X.—LAND CONVEYANCE.

No. 14,345.—John M. Burke.—*Improved Skein for Axle Arms.*—Patented March 4, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—Constructing the skein C of a metal plate, which is bent in conical or taper form, with a space or opening *a* in its upper part, the skein being secured to the arm B by means of the bolts E E, substantially as herein shown and described.

No. 16,153.—William H. Saunders.—*Improved Axle Box.*—Patented December 2, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—A lining of a thin tube of condensed and hardened ductile metal or composition, substantially such as specified, introduced and secured within the box, and presenting a hard, polished surface to the axle itself, substantially in the manner and for the purposes described.

No. 14,579.—Ezra M. Stratton.—*Improvement in Axle Boxes for Carriages.*—Patented April 1, 1856.

The nature of this invention will be understood from the claims and engravings.

The inventor says: I do not claim the lateral grooves in the large part of mail-axle boxes, in which to fit the heads of short bolts to supercede long bolts, as described and claimed by William H. Saunders. Nor do I claim long bolts passing through carriage hubs, to fasten them upon mail axles, the same being outside of and disconnected from the box, as heretofore used.

But I *claim* plain longitudinal channels *i* across the enlarged portion of mail-axle boxes, adapted to and in combination with long bolts *g*, for fastening carriage wheels upon mail axles, by which combination the long bolts are brought close to the small portion of the box *b*, and the whole so compactly grouped together as to adapt mail axles, and boxes, and long bolts to small hubs, such as are now required for light and fashionable carriages, as described.

2d. The combination of plain, longitudinal channels, made across the enlarged portion of mail-axle boxes, with reverse channels made in corresponding portions of the hub, when the box *b* and hub *c* are fitted for and combined with the long bolts acting therein as keys between the box and hub, as seen in fig. 2, for the purpose of securely fastening the box in the hub by means of the long bolts, which thus

perform the functions of keys, and dispense with the necessity for injuring the hub by splitting and wedging the same, as has heretofore been necessary in all cases for fastening axle boxes in carriage hubs, whereby I preserve the whole strength of the hub, and materially cheapen the cost and labor of fitting and fastening the box therein, as described.

No. 16,099.—Pierre Etienne Proust.—*Improvement in Lubricating Car-Axle and other Journals.*—Patented November 18, 1856.—France, April 15, 1853.

As soon as the undue rotary friction of the axle journal X or the temperature of the atmosphere causes a sufficient heat to melt the lubricating matter, the water in the reservoir A is also heated sufficiently to exert by its steam a pressure which causes a certain quantity of water to pass through the syphon H into the bottom part G of the grease box, where also the melted greasing matter is collected. The water and grease thus heated mix very easily and form a soapy liquid, in which all foreign matters which may have got into the greasing apparatus settle down, at the same time that the axle journal is prevented from becoming overheated.

The inventor says: I do not claim the mere introduction of steam or water into the lubricating chamber; but I *claim* the application to the greasing or lubricating apparatus of axles, shafts, and other rotating portions of carriages and of machinery, of an air-tight reservoir containing water, which, being heated by the friction of the rotating portion, is caused to pass through a syphon into the box containing the lubricating matter, and there to mix it, for the purpose described and in the manner exemplified.

No. 14,232.—P. G. Gardiner.—*Improvement in Railroad Car-Axles.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The improved car axle, composed of a sheet of metal *a*, wound into a tubular form, with its ends welded to solid journal pieces, substantially as herein set forth.

No. 16,113.—David Cumming.—*Improvement in Boxes and Axles, Journals, &c.*—Patented November 25, 1856.

The nature of this improvement consists in making the box of axle-journals *x y* in two or more segments, joined together by screw-threads cut upon them; and in turning out a conical groove on the inside of the box, in which works a corresponding conical collar *a b* on the spindle. The conical collar is adjusted directly in the centre of the wheel, and is to be the only bearing part of the journal, the hole through the box

surrounding the other parts of the spindle being made large enough to allow it to revolve without touching.

Claim.—I claim the V-collar, or bearing *a b*, running in a V-groove, as described; and the construction of the box in two separate parts, with the oil receptacles, as described.

No. 14,415.—Alfred E. Smith.—*Improved Boxes for Axles.*—Patented March 11, 1856.

In this box *a* the axle can fit closely throughout its entire length, and it will yet be fully lubricated, and without waste.

The inventor says: I am aware that the flies have been cast with grooves in them, and that one of these grooves has been made to connect, by a tube along the outside of the box, with the face of the hub, so that oil might thereby be poured in, to avoid the necessity of taking the wheel off. These grooves cannot be said to act as reservoirs strictly; and they also have taken away too much of the bearing surface, so that the axle wears into the box along the sides of the groove.

I do not claim making slots in the box in the line of the axle or reservoirs, communicating with the axle by holes or funnel-shaped apertures.

But I *claim* the combination of two or more longitudinal narrow slots cut in the direction parallel to the axis of the box, with longitudinal cavities, substantially as described and for the purpose specified.

No. 14,639.—Julius Bevin, assignor to Himself and Samuel N. Stillman.—*Improvement in Boxes for Axles.*—Patented April 8, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I am aware that hub-boxes with a flange to partially close the hole in the end of the box, without a score behind it, have long been in common use; therefore I do not claim a box with a flange without a score behind it.

But I *claim* the new manufacture of a hub-box for wheels which turn upon their axles, to wit: A hub-box B, with a score or groove G on the inside of the box, within or behind a flange C, which partially closes the end of the box, said score affording room for the washer H to play within the flange; and it also receives a packing I, to prevent more effectually the escape of the lubricating matter, and to exclude the dirt from the box and axle D, substantially as described.

No. 14,953.—Kingston Goddard.—*Improvement in Securing Nuts to Carriage Axles.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The method of securing screw-nuts on axles *a*, by combining with the nut *d* a spring-friction brake *f*, to act on the thread *c* of

the screw by the tension of the spring *h*; the lever or arm of the said brake being made to extend beyond one of the faces of the nut, so that the brake may be withdrawn from the thread of the screw by the act of putting on the screw-wrench to take off or put on the nut.

No. 14,747.—Richard Vose.—*Improvement in Divided Axles for Railroad Cars.*—Patented April 22, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim the use of an embracing tube for holding the inner ends of a divided axle, as that has been similarly used before.

But I *claim* the connecting segments *c c*, when combined with the inner ends of a divided axle and the embracing tube *d*.

No. 14,096.—Allen Greene.—*Improved Mode of Attaching Thills to Axles.*—Patented January 15, 1856.

The shaft or thill-iron *a* is attached to a piece of leather *b*, and the latter is attached to the axle *c* for the purpose of preventing any rattle at the point of connexion between shaft and axle.

Claim.—The use of the leather, gutta-percha, or other similar substance, in attaching the thill or shaft to the axle.

No. 15,169.—William Cox.—*Improved Mode of Securing Shafts to Axles.*—Patented June 24, 1856.

By turning the thumb-nut *f*, the two jaws *c e* may be secured over the rod *b*; and by unscrewing *f*, the elastic plate F will spring down and separate the jaw *e* from the jaw *c*, so that the shaft may be detached from the rod *b*.

Claim.—The two bars E F, with the jaws *c e* attached to them; the bar F being elastic, and having a screw G passing through it, on which a nut *f* is fitted. The bars E F being attached to the shafts D, and the rods *b*, around which the jaws are fitted, being attached to the axle A, substantially as shown, for the purpose specified.

No. 14,468.—David R. Perkinpine.—*Improvement in Boxes of Railroad-Car Axles.*—Patented March 18, 1856.

The groove *e* receives the projections *f* of the bottom *h* of the movable piece B. *i* is a hole for the admission of a bolt, which, screwing into the hole *j*, secures B to A. K is a circular recess for the reception of the collar *n*.

The inventor says: I do not claim, in connexion with axle-boxes, a movable reservoir with lubricating substances, or the method of con-

structing the box with a loose bottom; but I *claim* the movable piece B, the vertical portion of which forms the front, and the horizontal portion the bottom of the box, in combination with the preparations *a* and *b* and groove *e* on the latter, for the purpose of quickly exposing the whole interior of the box for examination or cleaning, and as quickly covering the same.

No. 14,560.—William B. Gage.—*Improvement in Journal-Box for Railroad-Car Axles.*—Patented April 1, 1856.

I represents the inner box with the projecting lips L L. B is the cap-box, in which the inner box slides. S S are the springs which press the inner box against the journal J.

The inventor says: I am aware that boxes for railroad axles have been made with an outer and an inner cell below—the inner one to contain cotton waste and oil, and provided with springs to keep the waste up against the journal to lubricate it. And I am also aware that one-half of the box has been made movable and self-adjusting to the journal by springs; and therefore I do not claim broadly the use of an adjustable cell for containing cotton waste and oil, nor do I claim broadly the use of a self-adjusting half box. But I *claim* making the inner box or cell with projecting lips, as herein described, which embrace the lower half of the journal, to fit and slide in recesses in the sides of the brass or cap-box, as described; so that when the journal is inserted, and the inner box or cell is forced up against the journal by the springs, the whole circumference of the journal shall be embraced, to prevent the entrance of dirt and waste of oil, and yet permit the inner box or cell to approach the upper box, as the surfaces wear, as described; the fitting of the lips of the inner cell within the recesses of the cap-box, permitting the two to approach and recede from each other, without a break for the escape of oil, in the circle of the surfaces which embrace the journal, as herein described.

No. 14,291.—Charles S. Pitman.—*Improved Mode of Applying Shafts to Axles.*—Patented February 19, 1856.

The inventor says: I do not claim the mere use of rubber, either to act as a spring or to prevent wear and noise; but what I do *claim* as my invention is, the manner in which I have applied such to a shaft and axle, the same consisting in extending the India-rubber bolt-protector each way beyond the holding-strap, in combination with extending it entirely around the bolt, as specified, whereby, under any upward or downward movement of the shaft, not only the bolt, but the connexion fork, will be protected from wear and liability to make a noise while under sudden starting or stopping of the draught animal connected to the shaft, and the strain on the bolt and fork will be eased by the spring or elasticity of the bolt-protector.

No. 14,417.—Matthias Soverel.—*Improved Mode of Securing Thills to Axles.*—Patented March 11, 1856.

The catch E prevents the bolt D from moving endways, unless the catch is unlocked by forcing it up into the horizontal opening of the spring-chamber A. The portion of the catch inside the chamber A forms the nut into which the bolt D is screwed. When the catch and spring are forced sufficiently far along the chamber, the bolt being carried with them, the thill *e* can be taken out.

Claim.—The combination of the spiral spring F, and the catch or nut F E, and the eye of the bolt H, (figure 2,) and the spiral chamber and slots C, (figure 1,) substantially as described in the above specification.

No. 16,294.—Alfred E. Smith.—*Improved Mode of Connecting Shafts with the Axletrees.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim an engraving.

Claim.—Connecting the thills or shafts of a carriage with the axletree by means of journals of greater diameter than the thickness of the plate from which it projects; the said journals being fitted to holes in the ears, one of which ears is provided with a slot of less width than the diameter of the journal fitted to its hole, and large enough to allow the plate to slide in it freely, for the purpose and in the manner described.

No. 15,217.—D. Franklin Breed.—*Improved Brake for Wagons.*—Patented July 1, 1856.

In descending a hill, the yoke *a* is drawn back, which causes the brakes to be drawn up to the wheels by means of lever *c* and connecting-rod *d*. The revolving eccentric blocks *f* are so arranged that they fall entirely clear of the wheels when the brake is not in use.

The inventor says: I would state that I am aware that a self-relieving brake in backing is not new, nor is it new to so arrange the gearing that a progressively increasing power is applied in the application of the brake to the wheels; I therefore do not claim to be the first to apply such arrangement of parts as will effect either of those objects.

But I *claim* the combination and arrangement of the revolving blocks *f*, rubbers *g*, connecting-rods *b* and *d*, crank-lever *c*, and neck-yoke *a*, for the purposes specified.

No. 14,681.—Benjamin T. Trimmer.—*Improvement in Railroad Brake.*—Patented April 15, 1856.

Any pressure on the brake-rods R R will communicate to the secondary rods R^1 R^1 and elevate the tumblers T T, which will afford an abutment for the brake-rod of the next car, and so on.

If it be desired to back without braking, the engineer leaves the tumblers on the tender down, which will leave all the brake-rods free. The brake-rods act on the brakes through the intervention of the main lever L acting on the combination of levers *l l l*.

The brake-rods and levers are kept in a tense state by the action of the racks *m*. On the forward motion of the engine, however, the chain C, being extended, will act on the lever *e*, rock-shaft *d*, and raise the rack out of gear by the lifter *f*. The spring S will then operate to relax the brakes.

Claim.—1st. The combination of the secondary brake-rods R^1 R^1, with the tumblers T T, said tumblers being firmly attached to the truck, and supported by it.

2d. The combination of the hand-wheel H and secondary brake-rods R^1 R^1, said combination performing the double function of braking the wheels of the car to which it is attached, and raising the tumblers to operate the other brakes.

3d. The combination of the rock-shaft with the extensible and elastic chain, whereby the forward motion of the engine relaxes the brakes without danger of breaking said chain.

No. 14,385.—Vincent Barnes.—*Improvement in Railroad-Car Brakes.*—Patented March 11, 1856.

The rubbers G are held clear of the wheels B by the spring H, causing lever E to stand in a vertical position. When the brake is to be applied, the lever E is pressed in the direction the wheels are running; and so soon as the curved rubbers G are brought in contact with the wheels, the wheels catch on the same, and, by means of the links *a*, they are pressed forward, hugging the periphery of the wheels with the same degree of power that they are pressed forward, thus becoming a self-acting brake.

Claim.—Attaching the frame or brake C to the truck B by the parallel levers *a*, so as to form a self-acting, reversible brake, operating as herein set forth.

No. 14,640.—R. M. Evans, assignor to Himself and Charles S. Gale.—*Improvement in Railroad-Car Brake.*—Patented April 8, 1856.

The upper end of each lever *c b* passes through a longitudinal slot *a* in the brace G, so situated that when the brake-rod is at rest, the levers will be in contact at the most distant ends of each pair of slots.

When a train is to be stopped, the engineer, by any suitable contrivance, brings a block, situated on the rear end of the tender, in line with the foremost brake-rod. Then, by checking the engine, the cars are forced together, so as to move the brake-rods backward proportional to the momentum of each car. The action of the brake-rods will be readily understood from the engravings.

Claim.—The arrangement and combination of slots *a a* of the brake-

rod D with the chains *f g* and brake-levers *b c*, in such a manner that one of each pair of levers will be operated immediately by the brake-rod at the end of its respective slot, while the other lever of each pair will be moved in the other direction by the action of said chains, in whichever direction the cars may be moving, substantially as herein described.

No. 16,011.—Dennis Harrigan.—*Improvement in Railroad-Car Brake.*—Patented November 4, 1856.

By the introduction of the compensating toggles K and J and compensation rods G, the play in the shackling W, which is constantly causing a variation in the distance between the cars, does not affect the tension of the cord F, which runs through the entire length of the train; for when the bumpers V come together, and crowd the bumper-rods *p* back, the compensation toggles J K spring out, and spring the cord with them, so as to preserve a uniform tension of the cord F in all cases; the bumper-plates H will also be constantly held together by the tension of the cord. By winding up the cord F, the stops *y* can all be withdrawn from the bumper-rods *p*, as represented in fig. 3; and when the speed of the locomotive is checked, the momentum of the train will bring the bumpers together, and force the bumper-rods *p* back, which, by the arrangement of chain *k* attached to bumper-rod *p* and lever *h* and rod *f*, will apply the brakes *e* and *d* to the car wheels.

Claim.—The compensation rods G, in combination with the levers J and K, or their equivalent, operating in the manner and for the purpose substantially as described.

No. 16,004.—William G. Creamer.—*Improvement in Railroad-Car Brake.*—Patented November 4, 1856.

The spring in the drum E can be wound up by turning the hand-wheel P in the proper direction, and is prevented from reacting by means of pawl L engaging the ratchet-wheel F. In ordinary cases, the brakes are applied to the wheels by simply turning shaft I, as in common car-brakes; but should an accident occur which would require a sudden stopping of the train, then the engineer, by simply pulling the branch lines P, disengages the pawl L from the ratchet F, and the reserved power of the spring in drum E operates on shaft I and applies the brakes instantly.

The inventor says: I disclaim generally any and all plans of reserved power for closing brakes in cases of emergency that is not identified and in direct combination with the apparatus that is used for ordinary cases, and, if used from the engine, that is not in combination with the usual bell or signal cord of the train.

I do not claim, directly or indirectly, the use of weights or springs for closing brakes, nor as a reserved power.

Nor do I claim any powerful attachment to any one car by the brake-shaft, and transmitting its power from car to car by means of chains,

levers, pulleys, &c., as invented by Crawford, even considering it as a reserved power.

I claim no apparatus whatever involving a connexion of brakes from one car to the other.

But I *claim* generally the attachment of a reserved power for applying the brakes in sudden emergencies connected to and identified with the present brake-shaft, as used in eight-wheeled platform cars, and operating in combination with the common bell or signal cord of the train.

I claim the combination of the cross-bar D with the spring-drum E and circles of ratchet teeth F and H, operating in connexion with the vertical brake-shaft I, or the equivalent of a loose pulley with a double circle of ratchet teeth arranged in the same way, but actuated by a weight or spring, operated as described and for the purposes mentioned.

I also claim the combination of the jointed pawl L M and disconnecting lever N with the drum E, as specified, for retaining and disengaging the reserved power, when required, while the brakes are being operated by hand, if necessary.

No. 16,042.—Francis Armstrong.—*Improvement in Bumper-Brakes for Railroad Cars.*—Patented November 11, 1856.

When the speed of the train is checked, the bumpers a^1 of the cars are operated upon, and the rod *m* is pressed backwards, which, being in connexion with lever *u*, turns said lever on its fulcrum *g;* the rods K which connect the brake rubbers with lever *u* are operated upon, and the brakes are applied to the wheels. When the train is started, the cars do not touch each other, and the bumpers a^1 are free from pressure, thus keeping the car wheels free from the action of the brake rubbers L.

Claim.—The employment of the yielding force made by the pull on the cars to adjust the apparatus and place it in position that the force acting by the cars coming in contact with each other will secure that force to act on the brakes, and close them on the wheels; and the force made by the pull on the cars when allowed to react, reversing the position of the apparatus in the placing it, so that the pressure of the cars acting against each other can operate on the apparatus, and have no action on the brakes. This is claimed, whether done by the described apparatus, or any other analogous mode producing the same effect.

No. 15,038.—Mahlon S. Frost.—*Improvement in Railroad Car-Brakes.*—Patented June 3, 1856.

The lever A connecting with the rod B is used in all ordinary applications of the brakes. The lever A^1 connecting with the rod B^1 is used only for extraordinary emergencies, or when the speed of the train is required to be diminished suddenly, and when the train is backing; the other lever when the train is going ahead. Its operation is as fol-

lows: The levers A and A^1, on being thrown backward, move the sliding blocks opposite to the ends of the rods E and E^1, by means of rods B B^1 and elbow-levers C and C^1. The rods E and E^1, connecting with the cross-bars F and F^1, move the rods E and E^1 on the other end of the car. The rods E and E^1 are attached by toggle-joints to the levers L L, which apply the brakes in the ordinary mode; but the balance beams O O O O O O O are jointed together by the rods H H H H H H H. The ends of these rods pass through the balance beams O, and through the elliptical springs K K K K K K K, which regulate the pressure applied against the wheels. The sliding rods E and E^1 also connect by toggle-joints *j* and j^1 with the levers M and M^2, which levers are bent around the common centre P P, and by means of the levers M^1 and M^3 connect with the sliding blocks N and N^1.

Claim.—The arrangement of the sliding blocks D D^1 and N N^1 at the ends of the car platforms for engaging and operating simultaneously a set of through bumper and traction rods for applying the brakes; the said sliding blocks being under the control of the engineer, and capable of acting upon both sets of rods, or either separately, as may be desired.

No. 14,515.—Lucius Paige.—*Improvement in the Levers of Railroad Car-Brakes.*— Patented March 25, 1856.

The nature of this invention will be understood from the claim and engravings.

Claim.—The above described improved arrangement of levers and springs, and their application to the brakes of a railway carriage having swiveling truck frames; the same consisting in arranging two levers S S U U so that they shall cross one another, and work on one common fulcrum T, applying springs V and W between said levers, and on opposite sides of the fulcrum respectively, connecting both arms of the one, or the longer of said levers, with the draft chain or rods of two windlasses *b c*, situated at opposite ends of the carriage body or platform A, and respectively connecting the two arms of the other levers to the draft-rods R and Q, or chains of the brake levers N and M.

No. 14,766.—Edwin J. Green and Moses H. Wheeler.—*Improvement in Joint-Bodied Buggies.*—Patented April 29, 1856.

The axles C and D are united by a spring-reach E; the front end of which reach is secured to the bolt *i*, so that the axle may turn on said bolt. The body of the carriage is made to rest on the reach E by means of a bolt *n*.

The two sections, A and B, of the carriage are hinged together by a bolt *a*.

Claim.—Supporting the front or seat section A of a joint-body carriage on a spring-reach E, by means of a bolt *i*, or equivalent support, whereby we avoid the use of a spring as heretofore used under the seat, but still have the advantages of said spring by using the spring-reach as such.

No. 15,909.—JOHN C. WARD.—*Improvement in Railroad-Car Coupling.*—Patented October 14, 1856.

The end of the coupling-bar D is inserted into the opening C of the tumbler T; and by this operation the slide B is raised and the stud H is set free, causing the arm A to turn on its fulcrum into the position represented in fig. 2, thereby turning the tumbler T, and causing the head of the bar D to be retained behind the same. The arm A is lifted by a line attached at F; the slide B falling in front of stud H, after said stud has passed through the groove *a*, secures the tumbler for the reception of the bar D.

Claim.—I make no claim to a tumbler where a partial rotation effects the coupling, when such rotation is produced by hand; neither do I claim the fastening produced by the rotation of either socket or link, and known as the "bayonet-joint" fastening.

But I *claim* the weighted arm A, stud H, and slide-catch B, in combination with the partially rotating tumbler, when said tumbler constitutes the securing socket, constructed, arranged, and operating, substantially as described, for constituting a self-acting car-coupling.

No. 15,997.—D. LYNAHON and C. J. WING, assignors to D. LYNAHON.—*Improvement in Railroad Car-Coupling.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engraving. The device couples itself, and the disconnexion is readily effected by drawing upwards either of the pins D and cross-bars C, by hand.

Claim.—The construction of the coupling, as shown, viz: having the cross-bars C, with pins D, attached and encompassed by springs *b*, the bars and springs being placed in the boxes B, as described; and the shackles E, formed with inclined planes *d d* at their ends, for the purpose set forth.

No. 14,083.—JOSEPH S. BROWN.—*Improvement in Extension Railroad Car.*—Patented January 15, 1856.

The sides S of the car can be moved outwards to the position represented in the engraving, by means of racks B and pinions on shafts D. The portions N of the floor can then be swung outward so as to form a continuous floor N A N. The extended car will serve the purposes of a store or similar object.

Claim.—Extending the floor and sides of cars outwards, laterally, by means of the racks and pinions and other machinery connected to them or otherwise, so as to give a larger area to the floor, and also enlarge the capacity of the car, essentially in the manner and for the purposes set forth.

No. 14,841.—George Willard, assignor to Himself and Nathan W. C. Jameson.—*Improvement in Railroad-Car Seats.*—Patented May 6, 1856.

To throw the chair backward, the chair body is lifted until the tenon *i* is raised out of the vertical mortise. Then by pushing back the chair a little, the inclined mortise *h* is forced over the tenon, and the tenon is permitted to pass up into the said inclined mortise.

The lateral supports F F and G G relieve the journal *e* and socket *d*, as well as the tenon of said journal, from injurious lateral leverage or strain. The two independent foot-rests *m n* are so applied to the stand B, that while one of them may serve to support the feet of a person who may be in the chair, the other may be used to give support to the feet of a person sitting in a chair placed in rear of the first.

Claim.—The combination of the divergent mortises *g h*, or their equivalent, the guide groove *l*, and the projection *k*, as applied to the seat-holder *c*, and the journal *e*, provided with a tenon, as specified and arranged in a stand B.

I also claim combining with supporting socket or stand B and the chair seat or chair, the lateral bearers F F and legs G G, each provided with feet *m n*, the same being for the purpose herein before specified.

No. 16,160.—Theodore T. Woodruff.—*Improvement in Railroad-Car Seats and Couches.*—Patented December 2, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—In combination with the movable frame *g* and the fixed frame *f*, substantially as described, the employment of the movable seats at the ends of the several divisions, substantially as described, to give the required number of seats when the couches are not used for the purpose of reclining, as set forth.

Also, converting the back of the side seats into an elevated couch, as set forth, by connecting the upper or back edge of said back to the side of the car, or to the partitions *e e*, by hinged joints or other equivalent means, and holding it up in the required elevated position by means of catches or other equivalent means, as described, in combination with the movable frame *g* and fixed frame *f*, or any equivalent therefor, as described.

Also, the manner of connecting the upper or fourth couch with the car, substantially as described, so that it may be let down, to be used as a couch, or thrown up to the roof of the car when not required to be used, as set forth.

And, finally, in combinatian with the said upper or fourth couch, the hinged or suspended step, substantially as described, for the double purpose of a step to give access to the said upper couch, when used as such, and as a means of securing said couch when thrown up out of the way, as set forth.

No. 16,159 —Theodore T. Woodruff.—*Improvement in Railroad-Car Seats and Couches.*—Patented December 2, 1856.

The movable frame *j* may be used as a seat when raised; and when lowered, the frames *j* of the two opposite seats, in combination with the stationary frames *i*, can be used as couches. The hinged back *n* of the seats, when raised to a horizontal position, will form, in combination with the frames *t*, an elevated couch; and lastly, the hinged cushioned frames *v* and *w* are arranged in such a manner that they can be converted into a couch above the car windows, and folded together, when not in use, as represented in the engraving.

Claim.—The combination of the movable and fixed frames on one side of each compartment with the movable and fixed frames on the opposite side thereof, to form each of two depressed couches when unfolded and connected, and which may be converted into two opposite seats when the two movable seats are thrown up and over the permanent frames, substantially as described.

Also, combining each of the hinged folding backs on one side of each compartment with each of the corresponding hinged backs on the opposite side of the same compartment, by means of the folding or connecting frames, or equivalent therefor, substantially as described; whereby the same may be used as backs for the seats, or as couches, as set forth.

And finally, forming an elevated couch above the windows by the combination of the two sets of hinged frames, substantially as described, so that when not required to be used as a couch, the two sets of frames may be folded up out of the way, in the manner substantially as described.

No. 15,233.—John Hennon.—*Improved Method of Turning Carriage, &c., Axletrees.*—Patented July 1, 1856.

The rules are not given here, as they would occupy too much space.

Claim.—The turning of spindles on axles for wagons, carriages, or all other similar vehicles, and the rule or principle of ascertaining the lines on the timber, and of finding the centre in accordance therewith, and of so adjusting a movable centre, or slide point A, in any common lathe, as to give an axle B any desired degree of inclination for the bottom or pitch line, and at the same time obtaining more or less gather at will, substantially as described.

No. 14,443.—Thomas Chope.—*Improved Carriage Coupling.*—Patented March 18, 1856.

The inventor says: The turning of a vehicle provided with this improvement is easily accomplished, as there is only five inches bearing; the bearing is also kept continually on the axle and turns in a small space; the slides O *a* (figs. 3 and 4) work with each other as the front gear is turned, throwing the body away from the front wheels.

This invention also obviates all king-bolt holes, which weaken considerably the front axle.

Claim.—Attaching the perch of a vehicle to the front axle in a manner which will enable it to turn or rock by means of a slotted T-shaped bar, which is attached to the front axle by means of clip *g* and the slides O and *a*, both working in the slots at right-angles, as clearly shown in fig. 2, substantially as shown and described.

No. 14,607.—William Greenleaf.—*Improvement in Carriage Coupling.*

When the carriage is turning, the bolt O moves the body N P Q R until the end of the moving-rod at F or E is at the end of the T-plate C D, which throws the body out of the way of the fore-wheel, thereby allowing the carriage to turn short round. The bolt O slides at the same time to the front end of the mortise J, which prevents the fore-wheel from coming in contact with the body, and lessens thereby the liability of upsetting.

Claim.—The application of the moving-rods E F G H, the circular T-plate C D S, and the half-circle A O B, as above described, or any other apparatus substantially the same, and which will produce the same effects.

No. 15,345.—Cyrus W. Saladee.—*Improved Three-Wheeled Pleasure Carriage.*—Patented July 15, 1856.

The nature of this invention can be understood by reference to the claim and illustrations. The object in using a three-wheeled wagon is to obtain greater facility in turning short round, and to get in and to alight from the vehicle without having the front wheel in the way of so doing.

Claim.—The longitudinal braces A A A, in combination with the double circle B, by which means the third wheel is firmly connected to the hind-axle and wheels.

No. 15,097.—Reuben W. Benedict.—*Improvement in Carriages.*—Patented June 10, 1856.

The springs E are connected to the springs F by loops G. These loops are firmly fastened to the spring F, but are allowed to turn in bearings upon the springs E. This is done in order that the heavier springs E may not be effected by the torsional motion of the body of the carriage.

The circle-plates H are placed back of the centre of the axle, to give more room for the wheels in turning.

Claim.—The combination of the springs E with the springs F and concomitant parts, in such a manner that the torsional motion of the body shall affect the spring E.

No. 15,923.—Daniel Freeman.—*Improvement in Carriages.*—Patented October 21, 1856.—Canada.

In the construction of these carriages, the springs D D^1 D^2 D^3 are suspended by means of loops E on the jacks B, which latter are supported by the axles A A^1. The suspension-bar F is bolted to the spring D, and to the ends of it the back corners of the carriage body are attached by the body-loops G. The middle of the back end of the carriage body is hung to the spring D^1 by the body-loop G^1, and the front end is suspended in a similar manner. The circle-plate H, which is usually attached to the front axle, is attached to the spring D^2; and the circle-plate H, which rests upon it, supports the suspension-bar F^1, to which the front corners of the body are hung by the loops G^2. The middle of the front axle is connected to the middle of the cross-bar N, which connects the two shafts to each other by a draw-wheel L jointed to the axle at one end, and securely attached to the bar N at the other. The circle-plate H is placed upon the lower one of the two front springs, and lastly the head-bolt M, upon which the circle H is placed, is made elastic; which arrangement affords the means of screwing down the circle-plate H^1 upon the circle-plate H sufficiently snug to prevent any rattling or jarring motion between them.

The inventor says: I am aware that the bodies of carriages have previously been supported upon springs arranged in pairs, both above and below the axles.

I am also aware that the draw-brace arranged directly behind the point of draught, and connecting the swingle-tree with the body of the carriage, is not new; I therefore do not claim broadly either the arrangement of the double springs, or of the draw-brace.

But I *claim* the combination and arrangement of the body, supported by and distributing its weight upon all four springs, when placed above the axles, as described; also the arrangement of the draw-bar and brace, by which the former is connected directly with the centre of the fore axle; also the arrangement of the fifth wheel or circle H upon the lower of the two front springs; also making the head-block M elastic, as set forth.

No. 14,395.—Robert D. Dwyer.—*Improved Apparatus to Prevent Horses in Carriages from Falling.*—Patented March 11, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The application of a suitable projecting frame attached to the most convenient part of the carriage, or to the carriage and front axle, projecting over and between the horse or horses sufficiently far, and at a suitable distance above, so that straps, chains, or other suitable fastenings, can be attached to the harness round the body of the horse and to the collar, as shown, for the purpose as described.

No. 14,231.—David N. Flanders.—*Improved Adjustable Carriage-Seat.*—Patented February 12, 1856.

A second seat or stool B is provided for the driver of a carriage by hinging the leg of the said seat B to the bed-piece of the main seat at D, so that it may be brought round under the ordinary seat A A when not required for use. (See position of seat B, shown by dotted lines.)

Claim.—The additional revolving seat B, hinged upon the bed-piece so that it will turn and assume the two positions already described, and thus make the carriage convenient for the accommodation of two or three passengers, as desired.

No. 14,931.—James D. Sarven.—*Improved Carriage-Shaft Coupling.*—Patented May 20, 1856.

q (figure 3) represents the spring-key, which is used for the purpose of covering the opening O in the top clip-iron D, for the purpose of oiling the journal.

The inventor says: I am aware that the ball and socket or universal joint coupling is old, and that a journal with a spherical enlargement in the centre is old; and therefore I do not wish to be understood as claiming either the one or the other. But I *claim* the improvement upon couplings for carriage shafts or tongues, which consists in enlarging the journal of the shaft iron *g g* in the centre, so as to form a globular, ellipsoidal, or double conical bearing surface, and clamping the same between the clip-irons C and D, countersunk, as described, by means of screws or other equivalent devices, so that the wear is entirely upon the enlarged surface, and all lateral play and rattling of the clip-irons are prevented.

Also, in combination therewith, the leather packing, for the purpose of retaining the lubricating material.

No. 15,979.—William S. Lord.—*Improved Perch-Coupling for Carriages.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Coupling the fore axletree of a carriage or other vehicle to the perch, by means of a cross-bar B, attached to the perch at a suitable distance in rear of the axle, in combination with connecting links C, arranged and operating substantially as described.

No. 14,197.—Richard Montgomery.—*Improvement in Carriage-Springs.*—Patented February 5, 1856.

This improvement consists in substituting for the extra leaves of the ordinary elliptic spring an internal corrugated spring, the thickened

angles of which give the necessary strength, and the thin sides the requisite elasticity.

Claim.—The corrugated spring D, when used in connexion with the elliptic spring A, substantially as described.

No. 15,126.—John U. Fiester.—*Improved Carriage Spring.*—Patented June 17, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—Forming elastic twisted springs *a a* with an elliptical curve, for the purpose of giving to the same greater strength and elasticity, and also a lateral and vertical motion.

No. 15,914.—Thomas Dutton, assignor to John R. Elvans.—*Improved Brace for Carriage Springs.*—Patented October 14, 1856.

This invention consists of a combined brace and lever, which are self-regulating, said lever being composed of a toggle-joint, one leg of which extends past the fulcrum *a* which is attached to the carriage-spring, so forming a lever *b*, to which a brace-rod *c* is made fast by a joint, while the other end of the said brace-rod is made fast, by a similar joint, to any required place on the perch of the vehicle.

Claim.—The combination of the brace-rod with the toggle-joint and lever, or any of their equivalents, substantially in the manner and for the purpose set forth.

No. 15,234.—M. G. Hubbard.—*Improved Mode of Adjusting Carriage Springs.*—Patented July 1, 1856.

When the fulcrum irons *a a* are affixed to the springs they are placed back to back, and a bolt *c* is passed through the whole; the ribs *x x* fit into each other, thereby permitting the two irons to be put together at any angle, which enables the operator to place the two bars at the proper position, and to shift as the springs require to be set up.

Claim.—The double fulcrum iron with a changeable angle, constructed and arranged in the manner and for the purposes set forth.

No. 15,189.—Richard Murdock.—*Improvement in the Running-Gear of Carriages.*—Patented June 24, 1856.

The nature of this invention consists in connecting the inner ends of short, independent axles *a a* with boxes *b* sliding upon a swivel-bar *c*, in order to give the requisite strength to the system, and at the same time admit of the free movement of the said axles about their attachment. And further, in making this attachment of a bolt perpendicular to the axle, and passing through the same and the permanent cross-bar of the forward portion of the running-gear.

The inventor says: I disclaim the short axles and the manner of turning them about their attachments, such constituting no part of my invention.

I also disclaim supporting the extremities of the axles on stationary tram-ways during their movement.

But I *claim* the swivel-bar *c* and boxes *b b*, in combination with the short axles *a a*, connected with the extremities of the cross-bar.

No. 15,297.—ALEXANDER B. LATTA.—*Improved Wheel for Steam Carriages.*—Patented July 8, 1856.

The spokes B and C are screwed into hub *a*; the angle-iron *d*, which is in place of the felloes in common wheels, is riveted inside the rim *c*; the spokes pass through the angle-iron and rim from the outside, and are provided at their outer end with a conical head, the rim and angle-iron being countersunk to fit the taper. The spokes are tightened inside against the angle-iron by means of the jamb-nuts 5 and 6, for the purpose of strengthening and bracing the spokes. The wearing tire *f* is cut apart in four places, in order to allow this tire to stretch as it runs over hard pavements.

The inventor says: I am aware that the different parts composing the wheel have been separately used before; which I disclaim, when taken separately.

But I *claim* the combination of the tire *e*, angle tire *d*, sectional tire *f*, cross-spokes B and C, and jamb-nuts 6, for purposes mentioned in the foregoing specification.

No. 15,567.—F. A. JEWETT.—*Improvement in Thorough-Braces for Carriages.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Combining with a thorough-brace *a* a right-and-left-threaded screw *c d*, working in nuts *e f*, substantially as described, whereby the thorough-brace can be tightened and the slack taken up at the same time.

No. 15,071.—JOHN H. GOULD.—*Improvement in Three-Wheeled Carriages for Children.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The curved arms B B, resting upon the arms or bars A A, forming a support for the body of the carriage, and terminating in sockets, both in front and back, for the reception of the arms C C of the frame C C D, for the purpose of permitting the carriage to be drawn and pushed from either the back or front position.

No. 16,122.—George Kenny.—*Improvement in Turning-Circles for Carriages.*—Patented November 25, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

a represents the axle of the carriage, *b* the head-block, *c* the perch, *d* a circular box containing a leather-washer *e;* the annular plate *f* moves between washer *e* and friction-roller *g*.

Claim.—An annular box-plate, composed of two circles, one attached to the head-block or rocker, and the other to the axle, and so constructed as to form a box for excluding dirt and grit from the bearing surfaces of the circular plates, in which box is inserted a washer of oiled leather ; the box-joint serving to exclude all dirt and grit from the bearing surfaces, and thereby preventing their rapid wear, and the leather-washer preventing the squeaking noise and friction common to all other modes of connecting turning-circles, and preventing the jar which would otherwise be occasioned by two metallic surfaces striking together, as set forth.

I also claim combining with a circle a rubber or other elastic friction-roll, upon which the said circle turns, to lessen the friction and noise and diminish the wear, as set forth.

No. 14,400.—Henry Hayes.—*Improvement in Carriage-Tops.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engravings.

f e d b are the slat-irons, and *g* represents part of the body of the carriage.

Claim.—The plate or circle *c*, having the slat-iron of the front bow projecting from it, working on a pinion on the standard *h*, in connexion with a spring-latch or pawl *m* fitting into notches in the plate, by means of which the top of the carriage is sustained in an elevated or half-elevated position, substantially as described.

No. 14,735.—Alanson Quigley.—*Improved Apparatus for Raising and Lowering Carriage-Tops.*—Patented April 22, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The box B, cog-lever A, pawl D, and cog-wheel C, in combination.

No. 15,725.—Cyrus W. Saladee.—*Improved Mode of Adjusting Carriage-Tops.*—Patented September 9, 1856.

By pressing on the rod D at G, the top props A are drawn back and the top is let down ; this operation can be performed by the pas-

senger without moving from his seat, and the carriage-top can be raised in a similar manner.

The inventor says: I disclaim the use of one straight rod or bar of iron, when placed on the inside of the back to the seat, with both extremities passing through a square hole in the lower end of the top props, and operated upon by a lever; as that forms no part of my invention.

Neither do I claim the long perpendicular rods at the back of the seat, and connected to the back bow; as that is patented by Mr. Huntington.

But I *claim* the lateral rod D D, in combination with the top props A.

I also claim the perpendicular rods E E, in combination with the lateral rod D D and the back of the seat, for the purpose of throwing back or raising up the top while seated in the carriage, substantially as set forth.

No. 14,066.—Charles Phillips.—*Improved Machine for Loading Dirt Cars.*—Patented January 8, 1856.

An opening or cut being made in the hill to be excavated, it receives the framing A. The outer ends of the aprons H H rest upon the sides of the cut. The shaft G is so turned that the inner ends of the boxes B will rest upon the button F. The boxes B are then filled with earth; when the boxes are filled, the shaft G is turned so that the button F will be turned free from the inner ends of the boxes, and the shaft C is turned by means of horse-power, and the boxes will tilt, the earth falling into the car, which is backed underneath the boxes, and represented in dotted lines.

Claim.—The framing A with boxes B, and aprons or levers H attached to it, and arranged substantially as herein shown and described, for the purpose specified.

No. 14,364.—George T. McLauthlin.—*Improvement in Railroad Car Seats.*—Patented March 4, 1856.

P is an India-rubber ring. The nature of the improvement will be understood from the claims and engravings.

Claim.—Connecting the back of a railroad-car seat with the body of the chair, by means of springs and catches K and *m*, or their equivalents, whereby the back is made self-elevating when relieved from the catch *m*, which holds it, in the manner substantially as herein set forth.

2d. In combination with the chair seat and its support, the annular ring P, for the double purpose of a spring for the seat, and to prevent the seat from unnecessarily moving or rocking on its support when occupied, substantially as herein described.

No. 15,698.—Danforth Johnson.—*Improvement in Metallic Car-Spring.*—Patented September 9, 1856.

The nature of this invention consists in arranging any number of steel springs in a metallic box *a b*, of a circular, square, or polygonal

form, the base of said springs being secured by a metallic flange *c*, which latter is also secured to the box *a b*. The springs are cut in radiating leaves; the central parts are elevated in a conical form around a pillar *e*. A plate *f* rests on the elevated central parts of the springs, and upon this plate the car has its bearing.

Claim.—The combination and arrangement of a number of springs radiating from a central stud, and secured at the circumference or rim to a box or bed-plate.

Also, the arrangement of the convex bed-plate *a b*, over which the springs bend, in combination with the stud or pillar *e* to resist the lateral motion of the car or carriage; the whole combined, arranged, and operating substantially as set forth.

No. 15,869.—Carlos French.—*Improvement in Coiled Springs for Railroad Cars.*—Patented October 7, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Composing the coiled leaf of two or more leaves *a b c*, placed the one below the other, said component leaves being welded together at one or both ends thereof, substantially as set forth.

No. 15,699.—John Kulinski.—*Improvement in Collision Apparatus for Railroad Cars.*—Patented September 9, 1856.

The apparatus represented in the engraving is attached in front and in the rear of a train of cars; and upon a collision taking place, the shock is first communicated through the bumpers N to the foremost shield B, then falling back upon the next shield A, the interposed springs E give way, all the balance of the shields retaining their distances because of the rigid obstructions of the bars F not being unlocked. But as soon as the pipes L of B have wedged up the slides H of the shield A, the bars F of shield C cease to resist, pass through the pipes L of B, and the shield A falls back upon the next shield C. The momentum of the shock turns now to overcome the springs of the shield C, until the pipes L of shield A have wedged up in their turn the slides H of shield C; when in their turn the bars F of the next shield B cease to resist, pass through the pipes L of C, and the shield falls back upon shield B. Thus, by combining a number of shields A B C, the momentum of the shock, by overcoming the power of the springs E, will be so exhausted as to become harmless to the cars of the train.

Claim.—Protecting railroad trains against the injurious effects of collision, by the attachment to their front and rear of a series of shields A B C, kept at a distance from each other by elastic and rigid resistances E and F in such a way that, a collision taking place, said shields are to fall back successively upon each other from the fore to the rearmost; the resistance to yield to the shock alternately and in suc-

cession by the operation of tubes and snap locks H I, or their equivalents, being constructed, arranged, and operating substantially as and for the purpose specified.

No. 15,833.—Joab Buck, assignor to Himself, H. S. Buck, J. W. Kimball, and D. H. Thompson.—*Improvement in Disconnecting Railroad Cars and Applying Brakes.*—Patented September 30, 1856.

The manner of disconnecting the cars of a train is as follows: When the cars are coupled together in a train, the only hook which is in position to be operated upon by the dog *z* is that which is connected with the rear buffer of the last car *a* y^1. On turning the shaft R this hook will be depressed, and by its depression the coupling *q* is withdrawn, and the last car of the train is separated from the others by the force of the spring O. The manner in which the brakes are applied to each car after it is detached from the train is as follows: The lever H, by the raising of which the brakes are thrown into operation, rests upon the top of the lever V, which carries the coupling pin, consequently, as the latter is raised for the purpose of uncoupling the rear car, the lever H is raised, and the brakes of this car are thus applied at the same instant.

The inventor says: I do not claim the application of all the brakes by the engineer; nor do I claim the mere combination of a brake and coupling apparatus, as that is well known.

But I *claim* the within described combination and arrangement of the shaft R, dogs Z, hooks Y, and levers H and V, operating in the manner substantially as set forth, for the purpose of uncoupling whichever car may be last in the train simultaneously with the application of its brakes, as set forth.

No. 15,581.—William B. Slaughter.—*Head Rest to be used in Railroad Cars.*—Patented August 19, 1856.

The yoke A B is fitted to the shoulders, and held there firmly by the girth G. The standard C, which is inserted in the socket S, supports the head rest attached to it by means of hinges *h* to allow the pad D to adjust itself to the position of the head, the apparatus serving to support the head of a person while travelling in a railroad-car.

Claim.—The yoke set forth, together with its mode of attachment to the person, and the combination of the hand rest with the yoke, in the manner described, so that it can be attached to the person, and made to serve the purpose of a head rest, without any other attachment, substantially as set forth.

No. 14,154.—Henry N. Degraw.—*Improvement in Machine for Replacing Railroad Cars.*—Patented January 29, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim as new any of the devices separately considered, making up the combination.

But I *claim* the combination of the self-adjusting packing wedge D, attached to an elastic or yielding rod C, with the bars B and A, operating levers I K, and griping jaws F F, constructed and arranged for operation together, in such a manner that while upon the depression of the hand lever, which effects the movement of the car or locomotive wheel, the griping jaws are made to firmly grasp the rail to secure a steady fulcrum for the operation of the lever, the packing wedge follows up the movement of the wheel to retain it in the place to which it has been moved, and upon raising the hand lever the griping jaws are released, and the whole implement may be run forward on the rail for a further joint action of the self-adjusting wedge and gripe of the jaws, as a prop to follow up the work, repeatedly and progressively as set forth.

No. 14,331.—Joseph Wood.—*Improved Method of Excluding Dust from Railroad Cars.*—Patented February 26, 1856.

The nature of this improvement consists in attaching to each side of the platform B, or bottom of the car, a slatted frame C; the slats *b* being in a vertical position, and capable of being turned either to the right or left, according to the direction in which the car is going.

Claim.—The employment or use of the slatted frames C attached to the sides of the bottom or platform of the cars, substantially as shown for the purpose specified.

No. 14,981.—William D. Arnett.—*Improvement in Replaceable Axle-Box for Railroad Cars.*—Patented May 27, 1856.

The nature of this invention consists in the manner of constructing the box case 5, as shown, together with the flange 3, on which the lower part of the rubber spring 2 is made to rest, so that in order to remove the box case from the pedestal 1 the truck only needs to be elevated a little, so as to loosen the rubber spring sufficient to take it out, after which the rubber flange is elevated, thus leaving the box case free to be removed out at the front of the pedestal, instead of the tedious process heretofore used. The rubber flange has two lock lugs 4 4 that project down into recesses made in the box case on each of its sides at the top for keeping the box case in its position.

The inventor says: I am aware that boxes have been made, so that the bearings and other parts can be taken out separately, without removing the stay bar, this therefore I do not claim.

But I *claim* the arrangement by which the entire case can be removed with the enclosed oil-box and bearings, said box or case being slid into place, and attached to the piece upon which the spring rests, by means of the lugs 4, and recess 1 1, substantially as above described.

No. 14,014.—JOHN G. CROCKER.—*Improvement in Safety-Guard for Railroad Cars.*—Patented January 1, 1856.

The nature of this invention consists in providing railroad cars with shields upon each side on the outside of the wheels and between the bottom of the car-body and the track, extending sufficiently beyond the lap upon the shield of the next car when at its greatest running speed, thus forming a continuous shield from the engine to the rear end of the train; and also providing the cars with a movable or yielding platform to cover the space between each pair of cars when running, for the purpose of preventing accidents and loss of life on railroads.

In fig. 1, C represents the side shields attached to the car by means of hooks and rods; and in fig. 2, F represents the yielding platform between two cars.

Claim.—I do not claim the first discovery of the idea of preventing accidents by covering the wheels of railroad cars, nor do I claim the invention of any part of the car, nor will I make any claim to any separate part of the shield or movable platform.

But I do *claim* as my invention, and desire to secure by letters patent, the shield and the movable platform to be attached to railroad cars for preventing accidents, as hereinbefore set forth, and though both are necessary to effect this purpose fully, yet I claim them separately as well as in combination, to be made and used as hereinbefore more fully described and set forth.

No. 14,665—JAMES KLINE, jr., and SIMON V. CLINE.—*Improvement in Safety Platforms between Railroad Cars.*—Patented April 15, 1856.

The slats A and C are framed into the cross-heads D in such a manner as to slide into the spaces B and E when the cars butt together.

Claim.—The peculiar construction of a connecting safety platform between railroad cars, operating substantially as described.

No. 14,508.—CHARLES H. LEWIS.—*Improvement in Spring Platform for Railroad Cars.*—Patented March 25, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Connecting the guard C to the box-platform B by elastic band-springs D D and a check-chain E, or its flexible equivalent, arranged substantially in manner as described, and so as to enable the guard not only to adapt itself to the movements of the carriage, but to maintain its place, or be arrested in its outward movement in the platform, as stated.

No. 15,839.—WILLIAM O. GEORGE.—*Improvement in Bumper Arrangement for Uncoupling Railroad Cars.*—Patented October 7, 1856.

By operating the crank-shaft *c* so as to wind up the chain *i*, it will cause the butt end of the rod R to strike against the head of the corres-

ponding rod of the rear car, and as it is pressed back, striking against the rod R of the front car, pushing it before it, and dragging with it, in its retrograde movement, the chain D, to which the spring-bolt I is secured, withdrawing the latter from the mortise in the connecting-rod H, and detaching the rear car from the front car.

Claim.—The arrangement of sliding rods running longitudinally beneath the platforms of railroad cars, so connected with the coupling pins of the different cars that they may be simultaneously detached from each other by simple contact of the sliding rods at the same time that the engineer or conductor is enabled to disconnect one or more of the cars, if desired, substantially in the manner set forth.

No. 14,139.—William H. Metcalfe.—*Method of Ventilating Railroad Cars.*—Patented January 22, 1856.

K is the water level, L the opening to the register, P the faucet for emptying the water-box, M the water safety-pipe, O the roof of the car.

Claim.—The passing of a current of air, the force of which is regulated by the motion of the car, and a self-regulating bonnet A through a body of water, which water is retained within a certain space by a certain number of wire screws B, placed as shown in the drawings. The air thus freed from water, dust, cinders, &c., is carried directly into the car, through registers, or by pipes around the stove, and out of the car by a similar apparatus, (emptied of water,) after the air has been used.

No. 14,945.—James Beetle.—*Improved Car Window.*—Patented May 27, 1856.

By this arrangement the window frame may be caused to turn outward, into an angle with the plane of the side of the window opening, as shown, so that when the carriage is running air shall be caused to flow out of the window.

In order to maintain the widow frame in connexion with its openings, or to prevent it from dropping out of place, in case both sets of bolts should be moved backward simultaneously, and out of their bolt-holes *ff*, the window is confined to its frame by means of the hinged arms I K and L M.

Claim.—Combining with the movable widow frame A, and its socket-frame or opening B, four bolts E F G H, and four sets of so ket holes *ffff*, or bars, provided with such holes, the whole being arranged so as to operate together.

I also claim combining with the widow frame A, and its socket frame or opening B, made in the side of the carriage, two sets of hinged arms I K and L M, applied to opposite sides of the frame.

No. 16,147.—James H. Morley.—*Improvement in Railroad Chairs.*—Patented December 2, 1856.

This chair is made of two parts, which are bolted together by means of screw bolts C, by which the two parts can be forced together, and are caused to grip the bottom flange of the rail on its top side and bottom.

Claim.—Fishing the joint of railroad bars with a divided chair, to ease the grip of the chair to the rail, on the bottom flange of the rails, when so constructed, that the divided bed of the chair shall not come into contact with or impinge upon each other, so as to bear any part of the strain of a weight upon the rails, but leave the upper jaws free to bite with the whole strain of the bolts, whereby they are made to gripe the rail joints more firmly, as the cars move over them, without the necessity of being supported upon ties or bearers, as heretofore, in the manner substantially as described.

No. 15,355.—John B. Witherle.—*Improvement in Car Coupling.*—Patented July 15, 1856.

The operation of this car coupling is as follows: The shackle pin I, (fig. 2,) is connected to the draw bar of one railway carriage while the coupling apparatus is applied to that of another carriage. The retractor B, (fig. 1,) coming in contact with the shackle pin, is moved backward, and the pin L, (fig 1,) drives backward the graspers C, which by that movement approach one another and lock upon the shackle pin I.

The inventor says: I do not claim the employment of a sliding retractor for opening nipper C C, moving on a stationary fulcrum; but I *claim* applying the sliding retractor and the curved graspers together, so that the fulcrum of the latter shall be movable with the retractor, and the whole be made to operate in other respects.

No. 14,311.—Stacy A. Garrison and Daniel C. Moxey.—*Improved Coupling for the Joints of Felloes.*—Patented February 26, 1856.

The flange B is let into the rim A under the tire, with the tongue C to be let into a slot in the ends of the rim; the bolt F and clamp E serve to hold the whole together.

The inventors say: We do not claim of itself a mere over-lapping brace, tightened by a separate bolt as is used for stiffening joints.

But what we do *claim* is, the stay-bolt, composed of head, stay and bolt, as described, in combination with the embracing cap-piece, tightened as specified, for securing the joints of felloes from lateral movement in addition to security against radical action.

No. 14,985.—Harvey Miner, Henry M. Stevens and William H. Saunders.—*Improved Coupling for Vehicles.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—A ring of vulcanized rubber *h*, or some other yielding and more or less elastic material, applied in combination with a divided eye *f* f^1 and a bolt or pin *d* fixed in the clips, either immovably or in such a manner that it can be taken out and replaced; the whole being applied to a vehicle.

No. 16,230.—Charles Flanders.—*Improvement in Railroad Car Couplings.*—Patented December 16, 1856.

By pressing downward the arm *h* of the bent lever E, and by moving it laterally underneath a catch *l* the lifter D of the shackle-pin *a* will be raised. When two cars come together and the shackle-pin of the approaching car has entered the chamber *b*, the momentum of said car will press backward the draw-bar C, and so as to move the lever E in such a manner as to discharge it from catch *l* of catch-plate F; as soon as such takes place, the lifter D, with the shackle-pin *a*, will be drawn downward by the action of the spring G, and in such a manner as to cause the shackle-pin *a* to pass through the coupling-link and thereby connect the two cars together.

The inventor says: I do not claim the mere application of a lever to the shackle-pin for the purpose of elevating the same.

Nor do I claim connecting such lever to such pin by a chain or any other flexible equivalent, but for the purpose of steadying the pin, maintaining it in its proper position with respect to its hole in the draw-bar, and enabling it to be drawn downwards.

I *claim* combining and arranging the lifter D and the spring G, with the pin *a*, the draw-bar C, and the elevating lever E, so as to operate therewith, substantially as specified.

I do not claim the combination of a horizontally acting hook with a vertically moving box arranged in a draw-bar, made to slide longitudinally and against springs, and merely for the sake of disengaging the hook from its fellow, such having been patented by Joseph Miller, November 14, 1854.

But I *claim* the same, consisting in arranging the draw-bar itself, so as to rock or tilt on a bearing I and to slide through a stirrup K, applied to a system of levers L M, whereby the draw-bar itself may be moved vertically, so as to properly adjust its receiving mouth with respect to that of another draw-bar, as may be necessary in order to couple two cars together.

No. 14,256.—Edwin F. Shoenberger.—*Improved Safety Spring Coupling.*—Patented February 12, 1856.

The shaft-iron F is vertically inserted into the box-iron A, attached to the axle of the carriage, by passing the key G down the slots E until it has reached the circular recesses H, when the shaft-iron may be turned down into a horizontal position. The spring I, attached to F, bears against the points C, so that the joint operates quietly and firmly and assists in retaining the position of the joint.

Claim.—The shape and construction of the coupling so that the carriage can be attached to the axle by merely dropping the ends downwards into the boxes in a vertical position, and their combination with the spring to prevent noise or rattling, substantially as described.

No. 15,351.—Peter Teal.—*Improvement in Detachable Shaft-Coupling.*—Patented July 15, 1856.

The screws F F being turned, draw the pressure plate or ring D upon the cone F and force the sleeve *a* into the cavity of the hub *e* thus causing the contraction of the split sleeve *a* and binding upon the ends of the shafts B B introduced into the body of the hub, and coupling the same.

The inventor says: I do not claim the split sleeve for coupling shafts constructed with single or double conical surfaces as that is well known, but the plate or ring D for the purpose of operating the coupling of the shafts, and also for releasing the coupling.

No. 14,265.—S. W. Wood.—*Improvement in Railroad Car-Couplings.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—Constructing the buffers A A of railway cars in such manner that the coupling rod *e* may be dropped into its place from the upper surface or sides, said connecting rod consisting of a single piece of wood or metal, being independent of and not in any way fastened to the buffers, while it is retained in position by its own gravity, substantially as herein described.

No. 16,044.—George Bradley.—*Improved Steam-Drag.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—1st. The arranging of the driving wheels R S of a steam carriage in a truck frame N, that can turn independent of the engine frame A, so that the engine frame shall follow or be drawn by the truck frame, instead of the latter being controlled by the former as has heretofore been done.

Also, transmitting the power of the engine to the driving-wheels, in the truck frame so arranged through swiveling point or axis K of the truck frame, so that there shall be no cramping or twisting of the frames or connecting rods, substantially as herein set forth.

No. 14,802.—S. Book and Wm. H. Book.—*Improved Machine for Sawing Felloes.*—Patented May 6, 1856.

The outer end of the saw frame F is elevated, and the stuff H secured between the uprights *e e;* the frame is then lowered, and mo-

tion given the shaft E, and the shaft B, and saw sash F work with a reciprocating motion, the saw G cutting a strip or felly off of the stuff H. The saw is fed to its work by the weight of the saw sash, and the size of the strips may be varied by adjusting the side pieces *c c*, so that the saw may be the requisite distance from the shaft.

Claim.—Hanging the saw by means of adjustable arms to a horizontal shaft or axle, thereby allowing the saw to descend by its weight through the circular path forming the curvature of the felly.

No. 14,407.—Henry Nycum.—*Improvement in Carriage Hubs.*—Patented March 11, 1856.

The spokes are lettered S D.

The inventor says: I do not claim a hub the central portion of which is provided with mortices or recesses for the reception of the spokes, as I deem such a hub impracticable from its very nature, as it limits the number of spokes in the hub or wheel to less than are actually necessary; nor do I claim a hub composed of concentric rings of alternate iron and rubber, with the spokes abutting against the outer ring, which would so enlarge the hub as to make it useless for my purpose.

But I do *claim* a hub composed of a back and front section A B, and having a thin metallic tube or ring E, independent of each, centrally placed between them against which the inner ends of the spokes abut when said sections are so made as that in removing the back one A, the pipe or box of the hub shall also be removed or removable with it, to facilitate the properly introducing of a new spoke, substantially as described.

No. 14,310.—Alfred C. Garratt.—*Improved Box for Carriage Hubs.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claim and engravings. A represents part of the hub and R part of the axle.

Claim.—The combination and arrangement of this peculiar lubricator, or its equivalent, with the recess groove or oil chamber *g* of the box, in the manner set forth and shown in the drawings, so as to form an improved combination wheel box for carriage axles.

No. 14,294.—Joseph Smith.—*Improvement in Hubs for Carriages.*—Patented February 19, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—I am aware that friction-rollers have been used for relieving the friction on the hubs of vehicles, and this I do not claim.

But I do claim the combination with the axle of vehicles of a segmental-box *c c*, slotted cylinder *d*, and friction-rollers *i i*, all arranged and operated as substantially set forth.

No. 15,770.—Robert Moor.—*Improvement in Securing Spokes in the Hubs of Wheels.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim as my invention the device of two screw-nuts working on one bush, for the respective purpose of securing the spokes in the hub and the hub on the axle.

Neither do I claim the dove-tailing of the spoke within the hub; knowing these devices to be old.

But I *claim*, first, the described oblique form of spoke-mortise, enabling all the necessary beveling and tapers of the spoke to be on that side which is in advance when the wheel is rotating forward, leaving the rear side straight for its entire length, thus adding to the strength, and reducing the labor of constructing the spoke, as fully explained.

No. 14,371.—Horace B. Simonds.—*Improved Mode of Attaching Hubs to Axles.*—Patented March 4, 1856.

The nature of this improvement will be understood by reference to the engraving.

Claim.—Securing the hub A upon the arm (*b*) by means of the clutch C, screw D, and cup or box E; the inner end of the clutch being of semi-cylindrical form, and having a flange (*f*) on it, which flange is fitted in a groove C, in the outer end of the arm; the screw D passing through the outer end of the hub into the clutch. And the back part of the arm having a collar (*d*) upon it, which collar is fitted into the back end of the hub; said collar being covered by a cup or box E, having a washer (*g*) within it, substantially as shown and described.

No. 15,818.—John M. Riley.—*Improved Mode of Attaching Hubs to Axles.*—Patented September 30, 1856.

By this arrangement, as represented in the engraving, the box I is allowed to rotate on the arm B with the smallest possible degree of friction, as the collars F H are interposed between the axle and bearing surfaces of the box, and a certain degree of lateral play or elasticity is allowed by the springs *k*, so that all lateral jars or concussions are avoided. In consequence, also, of the conical portion *f* of the collar G, and the flaring end of the collar H, which fits over it, the arm and axle are prevented from being injured by the lateral concussion of the box.

Claim.—I do not claim separately the collar F H, irrespective of their arrangement, as shown.

Nor do I claim springs interposed between the collar G, and the inner end of the box, for they have been previously used, although arranged in a different way from that shown.

But I *claim* the collar F H, placed upon the arm B, in combination with the tube E, nut C, key D, and elastic ring K, when the above parts are constructed and arranged as shown, for the purpose specified.

No. 15,769.—D. O. Macomber.—*Improved Omnibus.*—Patented September 23, 1856.

The first two features of this invention will be understood by reference to the claims and engravings. The third feature consists in connecting the brake-levers *i* with the shaft *m* of the ratchet-wheel *o*, so arranged that the driver with one foot can apply the stop to the wheel to hold the brake on, or remove it to liberate the brakes; just above the stop-wheel there are projecting arms *p* on said shaft to enable the driver with his foot to turn the said shaft and apply or liberate the brakes. To the strap *l* is attached another strap *q* which passes through an eye *r* in the body of the carriage, and the end of said strap is provided with a ring *s*, by means of which the passengers can operate the brake as well as the driver.

Claim.—The arrangement, substantially as specified, of two series of independent seats on each side of the carriage-body; but this I claim only when the backs of the seats are curved, and the front edge set obliquely, as set forth, and for the purposes specified

Also, connecting the body with the frame of the running-gear, so that it will rock thereon, substantially as described, in combination with the screw-bolts *f* and adjusting nuts at the ends, or equivalent therefor, for the purpose of setting the body at any desired inclination with the frame of the running-gear.

And finally, connecting the brake-levers with the shaft of the stop and foot-wheel, substantially as specified, in combination with the strap which passes into the inside of the carriage-body, to be operated by the passengers if required, substantially as described.

No. 14,470.—James Rodgers.—*Improvement in Omnibus Registers.*—Patented March 18, 1856.

The nature of this invention will be fully understood from the claim and the engravings.

The inventor says: I do not claim the general plan of an omnibus register acted on by a strap to the conductor or driver, or fitted with any other means for moving the register. Neither do I claim the indicating dials or hands, or any arrangement of the same; neither do I limit my invention to use with the peculiar arrangement of dials or other indicating parts.

But I *claim* the mode of blocking the ratchet-wheel K by making the operating pawl D pass at the end of its motion beneath or against a fixed back-stop E by which said pawl or its equivalent is held against the ratchet-teeth so as to lock the wheel in place, substantially as specified.

No. 14,652.—Levi Cromwell.—*Improvement in Omnibus Registers.*—Patented April 15, 1856.

A is the principal wheel upon which the draw-catch 4, connected by a wire *w* with the step, operates; the stop 10 prevents the passing of the tooth of A, except when the stem L and the dog 4 are thrown entirely up to its full stretch; 8 is a spring for throwing the dog into the

recess of the tooth on A. This arrangement prevents the bell from being struck twice, and prevents also the register from being moved by the jolt of the coach when passing over gutters.

Claim.—The use of the bar 10 for the double purpose of a stop by which the operating pawl shall at the end of its thrust be confined within the circle of the ratchet-teeth of the wheel A, and thus lock it, and of a medium by which to apply a strong force through the sliding lever or drop-leaf 6, or its equivalent, to the spring of the pawl, substantially as herein set forth.

No. 15,050.—GEORGE W. N. YOST.—*Improved Steam Land-Propeller.*—Patented June 3, 1856.

The nature of this invention consists in arranging the gearing (which communicates the rotary motion of the rotary steam engine *e* to the propelling shaft a^1) directly on the two main shafts *a* and a^1 by means of the wheels $f\ f^1\ f^2\ f^3\ f^4\ f^5$. The spur-wheels *f* and f^5 being of course keyed to their shafts *a* and a^1, while f^1 and f^2, f^3 and f^4 work loosely on the same.

The inventor says: I wish it to be distinctly understood that I do not broadly claim the combination of the rotary engine with the driving wheels by means of cogged gearing; neither do I claim any arrangement of cogged gearing separately.

But I *claim* the combination and arrangement of a rotary engine with the driving wheels of a land-propeller, by means of the described combination and arrangement of cogged gearing, in the manner and for the purposes substantially as herein set forth.

No. 15,036.—DAVID L. DAVIS.—*Improvement in Elastic Bearings for Railroad Chairs.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Covering the India rubber D, or other elastic substance, with the metallic cap E, constructed and applied to the chair C, so as to be independent of the control of the spikes which secure the chair to the sleeper, that the plate may be left free to vibrate in a vertical direction independent of the chair.

No. 15,480.—JOHN W. FOWBLE.—*Improvement in Mechanism for Compressed Air Railroad Signals.*—Patented August 5, 1856.

This apparatus is operated upon by compressed air escaping from bellows which are placed near a railway, and are operated upon by a train of cars as it passes by. The pipes 3 leading from the bellows are connected with air chest 24, and when the air is forced into said chest, through one of the valves 25, it opens the lever valve 26, the end of which operates the lever 33, which latter draws out catch 34,

thus liberating pendulum 15, which latter swings between the segments 16, by means of the weight attached to its end. The top portion of the pendulum strikes against a system of catches, which operate the clapper-hammer 17 against a bell 7. The signal 8 is caused to rise, when liberated from pin 42, and rod 41 attached to the axis of the signal by means of the counter balance 31.

No. 16,005.—Edwin A. Davis.—*Improvement in Railroad Station Indicators.*—Patented November 4, 1856.

Before the train starts, the apron F is wound up on one of the drums C, and as the train stops at each station, the lever R is pressing inward, and the bar A will be moved in consequence of the bar pressing against one side of the recess *m*, in the plate *l*, and one of each of the pawls *k j* will be thrown free from their respective shafts, and the apron F will be moved by the coil spring I, the cylinder E rotating one revolution, and bringing the name of the station directly opposite the glass B, in the box A, when the cylinders have made one revolution, the crank *p* strikes against the spring *n*, and moves the bar Q, so that the pawls *k* and *j* again catch into their respective catches, and stop the motion of the apron.

Claim.—I do not claim the endless apron F, operated by a spring, for that has been previously used for the same purpose.

But I *claim* the bar Q connected with the pawls *j j k k*, and operated by the lever R and crank *p*, arranged specifically as shown and described, for the purpose set forth.

No. 14,169.—Riley Root and Samuel G. Holyoke.—*Improvement in Machine for Clearing Snow from Railroad Tracks.*—Patented January 29, 1856.

The blower I upon a shaft C is placed upon and in front of an open car A, and is driven by an engine placed on the car and connected to the wrist-pin H on fly-wheel G, while the car is impelled forward by a locomotive. The blower is provided with four radial arms, the outer edges of which are mounted with knives L for clearing away the snow. The blower, which works at right angles with the track, can be driven either way so as to take advantage of the wind.

The inventors say: We do not claim a revolving track clearer, driven by the running gear of the locomotive, as we are aware that various forms of such have been proposed. But we *claim* the arrangement of a rotary fan blower, provided with knives, and made sufficiently large to sweep the entire width of the track.

The said rotary blower is to be driven by a power independent of he locomotive wheels, and is capable of being revolved in either direction at right angles to the direction of the track.

No. 16,300.—Allen B. Wilson.—*Improvement in Portable Head-Rests.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claims and engraving.

Claim.—1st. A head-rest composed of a pad, or other piece, to rest upon the back and shoulders, or either, supporting a pad of proper form to receive the back of the head, as described, or otherwise constructed in a substantially similar manner, to support the head without any attachment to the seat or any fixed object.

2d. Making the said head-rest with its pads flexible, and its supports consisting of a number of independent or unconnected ribs C C, substantially as specified, so as to give the greatest ease to the wearer, and enable it to be rolled or folded up when not in use.

3d. The sling combined with the head-rest, as specified, to receive the arm, for the two purposes of keeping the rest in place and protecting the pockets.

No. 15,991.—William Wentz.—*Improvement in Shaft-Tugs.*—Patented October 28, 1856.

The nature of this invention consists in making a metal ring A for the reception of the shaft of a carriage, with a projection B on one side, for the bar C of a buckle D, provided with a score for the loop of the buckle-tongue E, with a loop F on one side of the ring A for the trace to pass through, and with a second loop G on said ring for the belly-band strap.

Claim.—The new manufacture of shaft-tug described, to wit: A metal shaft-tug provided with a buckle for the back-strap and a loop for the trace, either with or without a loop for the belly-band.

No. 15,737.—George Kenny.—*Improved Mode of Attaching Shafts to Sleighs.*—Patented September 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving. The shaft C may be readily shifted in either of the two positions illustrated, and the sleigh made to answer either for country roads, where two tracks are generally made, or for such roads which are smooth throughout.

Claim.—Attaching the shafts C C to the runners of the sleigh by means of the eyes F F and rods G H, said eyes and rods being attached to the cross-pieces B D, provided with springs I I, the whole being arranged as shown, for the purpose set forth.

No. 15,558.—Oscar L. Cowles and Allen L. Denring.—*Improvement in Clamping and Upsetting Tire.*—Patented August 19, 1856.

The heated tire being placed in a horizontal position, the clamping-bars A, fully open, are dropped over it, and brought together by rotating the slotted lever M, which is attached at its centre to the top of

the saddle H, nearly a quarter of a revolution, causing the studs E to traverse the slots L, from the periphery towards the centre. By this movement the levers D, turning on the fulcrum F, act against the bars F like two pairs of tongs, and draw the clamping-bars A together, which thus upset the tire.

The inventors say: We are aware that machines have been in use for clamping and upsetting tire by the use of levers and screws for that purpose, requiring several distinct motions by hand to effect it, and we therefore do not claim clamping tire or iron for the express purpose of upsetting it when so clamped,

But we *claim* the combination of the lever (figure 1) with the auxiliary clamping-levers D D, (figure 2,) the carrying sheds E E, the connecting bars F F, the saddle-piece H, and the slotted clamping-bars A A, for the purpose of clamping and then upsetting tire by a single continuous motion of the slotted lever, (figure 1,) as set forth.

No. 15,214.—William A. Ashe.—*Improved Mode of Securing Tire on Wheels.*—Patented July 1, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I wish it to be distinctly understood that I do not claim securing tire on a car-wheel, after the method illustrated in fig. 2, as this is quite old,

But I *claim* making the tire B with a narrow tongue A at the centre of its width on its inner circumference, and the outer periphery of the circle of felloes with a groove C, to receive said tongue for the purpose of confining the tire on the wheel, and in order that the metal on the tire on either side of said tongue may be made quite thin and of unvarying thickness from the tongue to the side edges of the tire.

No. 15,272.—Henry Barringer.—*Improved Machine for Upsetting Tire.*—Patented July 8, 1856.

By raising the lever M, the bar C, together with plate *g*, is raised to its proper height; the long end of the lever *n* being raised, the short end with its clamping surface is lowered and carried from the bearing *y* on plate *g*, by which operation the clamping surface of the lever *r* is also moved from the lower bearing *y* by means of slotted lever *t*; the tire is then inserted between the clamping surfaces, the long arm of the lever *n* is depressed, the tire clamped, and the sliding clamp *i* is also forced against the tire to prevent it from kinking. The lever *m* is now forced down and carries the bar C and plate *g* downward pressing the tire endwise or upsetting it as much as required.

The inventor says: I do not claim clamping iron for the purpose of forcing the clamps together and thereby upset said iron.

But I *claim* the combination of the slotted-bar *t*, the clamping-lever *n*, and sliding-plate *g*, with the clamping-lever *r*, for the purpose of clamping and unclamping the tire with one motion of the lever *n*.

No. 15,908.—Noah Warlick.—*Improved Arrangement of the Thills of Vehicles.*—Patented October 14, 1856.

The frame composed of the bars *a b* and braces *c*, swing to the front of the vehicle by means of the eyes *e;* when one horse is to be driven, the thills *t* are inserted into the sockets *d*, and when a pair is to be used a pole is inserted in the socket *f* and keyed therein.

Claim.—The swinging frame composed of bars *a* and *b*, and braces *c*, adapted to the reception of either thills or pole, substantially as and for the purposes specified.

No. 14, 653.—Abram J. Gibson.—*Improvement in Attaching Thills and Poles to Vehicles.*—Patented April 15, 1856.

In the engraving, *a* represents the axle, *b b* the stationary parts of the movable hinge made fast to the axle *a;* the movable part *d d d* of the hinge is fastened to the thills or poles of the bolts *g g g*.

The inventor says: I do not confine myself to the material used for the hinge-joint; neither would I confine myself to threaded bolts passing through the hinges, as a plain bolt would answer, or the precise point of attaching to the vehicle.

But I *claim* the manner of attaching thills to vehicles by means of broad iron hinges independent of each other, without a cross-bar, for the purpose and in the manner and form substantially as set forth.

No. 14,484.—James H. Wilson.—*Safety Apparatus to be applied to Harnesses and Thills of Vehicles.*—Patented March 18, 1856.

The bottom piece *h* is fastened to the side piece *g* by means of catches *i i*, the projecting ears *j j*, and the spring *l;* K is a bar connecting the upper ends of the catches. By pulling the reins *l*, which are fastened to the bar K, the bottom piece will swing open and cause the vehicle to be detached instantly from the horse.

Claim.—Attaching the horse directly to the shaft C of one horse vehicles, by means of the boxes A A, which are secured to the harness as shown, a box at each side of the horse, the boxes being constructed as shown, with two hinged or jointed sides, so that they may be opened when necessary by the driver, for the purpose specified.

No. 15,692.—George H. Gray.—*Improved Mode of Attaching Horses to Vehicles.*—Patented September 9, 1856.

The plates C form the connexion between the harness and the shafts of the vehicle by means of the traces *c* and *d*, and the strain is entirely upon the loops *a*. The pins *h* of the levers D merely sustain the shafts and keep the plates C in the loops, and are not subjected to any strain. By drawing the cords *j* they actuate the levers G, and pawls F, which cause the levers D to be thrown outward, and thus to withdraw the pins *h* from the plates C B on loops *a*, and allowing the plates C to pass

out of the loops, the vehicle is thus detached from the team in case of accident.

Claim.—The plates C, attached to the harness as shown, and the plates B on the shafts A, with loops or clasps *a*, attached to the levers D, with the pins *h* on them, and the dogs F, levers G, and rods H, as described.

No. 15,288.—Francis J. Flowers.—*Improved Mode of Attaching Shafts to Vehicles.*—Patented July 8, 1856.

By screwing up the nut *b*, the cap D will be brought snugly down upon the rod B, and by screwing up the nuts E E, the flanges *d* on nut E will be fitted over the ledges *c*, and the rod B will be firmly secured in the eye and prevented from working or playing therein.

Claim.—The rod B, on the gooseneck or bar A, fitted in the eye C^1, on the bar C, the cap D attached to the bar C, and the nuts E E^1 on the rod B, the nut having flanches *d* attached to them, and fitting over circular or annular ledges *c*, on the ends of the cap and eye.

No. 15,179.—Francis M. English.—*Improved Mode of Detaching Horses from Vehicles.*—Patented June 24, 1856.

The nature of this invention consists in the combination of a lever L, hinged to and resting against the pin P in the end of the whiffletree W, so that when drawing the load the long arm of the lever will be drawn against the pin by the trace, and when the long arm is lifted by connexion with the cord leading to the driver, the trace will be disconnected.

Claim.—The combination of pins P P^1 with levers L L^1, constructed, arranged, and operating as shown, and for the purposes set forth.

No. 15,191.—Henry Phelps.—*Improvement in Running-Gear of Vehicles.*—Patented June 24, 1856.

This invention refers to a simple method of giving light vehicles ease of motion in a longitudinal direction. It consists in combining with a perch composed of elastic rods united midway between the axles by a joint *f*, two elastic rods running from this joint, the one *i* to the front end, and the other *m* to the rear cross-bar supporting the body.

The inventor says: I disclaim spring coupling for vehicles, broadly considered, as various devices have been employed for that purpose. But I *claim* the combination of the elastic rods *i* and *m* with the rods *c c d d* and *e* jointed at *f*.

No. 15,103.—George B. Kaighn.—*Improvement in the Mode of Attaching Horses to Shafts of Vehicles.*—Patented June 10, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—Supporting and controlling the ends of vehicle shafts A A^1 by means of the loops or tugs *b* b^1 secured to the harness B B^1, making the breeching (consisting of the band E and the adjustable holders *e* e^1 or their equivalents) a permanent and adjustable part of the said shafts; and attaching the back ends of the traces D D^1 together at the back end of the said shafts, so as to bear against and move on the pulleys *a a* in accordance with the forward motions of the horse; the whole being arranged and operating together substantially as described and set forth, and for the purpose of dispensing with the usual saddle, belly-bands, crupper, breech, supporting straps, and whiffle-tree, and thus facilitating in connecting and disconnecting horses and vehicles.

No. 14,190.—Elisha S. French.—*Improvement in Three-Wheeled Vehicles.*—Patented February 5, 1856.

The nature of this improvement is sufficiently indicated in the claim and engravings.

Claim.—The combination and arrangement at the rear of the vehicle, substantially as shown and described, of the caster-hung swivelling-wheel F in such connexion with the perch or body, that while in the forward run of the vehicle the said wheel runs in a parallel course central to the other two (advance) wheels, and at a considerable distance behind them, it, in backing the vehicle, is caused to occupy a like parallel and central position with its rim or tire in the direction of the travel, but in closer proximity to the fore wheels, and on the reverse side of the swivel towards the front end of the vehicle, and out of the way, as it were; whereby additional facilities are afforded for backing the vehicle in a crowded thoroughfare, and the other advantages specified are obtained.

No. 15,987.—William B. Twiford.—*Improved Dumping-Wagon.*—Patented October 28, 1856.

By turning the end *f* of lever M towards the front axle of the wagon, the latch bar O, which gripes the bent rear axle G at the projections *h*, is disconnected from said rear axle, and then, by taking hold of the lever P, the wagon can be dumped as represented in the dotted position, the body I moving forward as the rollers L move over the stationary reach bars F, while the axle G, connected to the body I by means of links *b*, is turned downwards.

Claim.—The so hinging of the reach bars F F and the bed I to a bent axle, that when said axle is allowed to turn in one direction in the hubs, the wagon-body shall dump, and when turned in the opposite direction be raised up horizontally, without one part being disconnected to slide or run on the other part, as set forth.

No. 14,304.—Benjamin B. Bundy.—*Improvement in Wagons.*—Patented February 26, 1856.

The axles A are made in halves, which meet in the bearings C. The half-elliptic springs *d d* are fastened to the axles at *c c* by clips with

link-joints. The rear spring is attached to the body at *f*, and the front spring to the under half of the circle at *g*, thus allowing the forward wheels to turn.

Claim.—The mode of combining the springs and axles of wagons, substantially as herein set forth.

No. 16,060.—Henry Kruse.—*Improvement in Wagons.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The application to wagons of wheels made buoyant by the use of disks, that will cause the wagon to be supported in water from such buoyancy; with the application of propelling blades on said wheels to cause the wheels to be available in propelling the wagon in water; and the same wheels, by removing the propelling blades, can change the wheels so that they are available in their uses in the transporting of substances on land similar to common wheels of wagons.

No. 14,174.—Thomas Winans.—*Improvement in Buggy-Wagons.*—Patented January 29, 1856.

Claim.—The combination of bent-bars and springs, arranged substantially as herein described, to connect the fore and hind axles, support the seat with both the requisite firmness and elasticity, and permit the front wheels to pass under the seat in turning short round.

No. 14,831.—Ephraim D. Rozencrantz.—*Improvement in Extension Wagons.*—Patented May 6, 1856.

This invention consists in so connecting the axles B and A of the front and hind wheels, that by the use of slide-bars *a b c*, and clasps connecting said axles, they may be extended or contracted in making changes from a single to a double seat vehicle; said bars serving the purpose of a reach or coupling, admitting of the employment of the ordinary stay-rods or braces required in giving strength to the rear axle, and admitting of the turning of the front wheels under the body without interference.

Claim.—The employment of the slide-bars *b c a*, constructed as described, when used with the bars K K, in the manner and for the purposes substantially as set forth.

No. 15,885.—M. G. Hubbard.—*Improved Arrangement of Springs for Side-Spar Wagons.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The mode described of combining the two semi-elliptic springs with the side-spars of light wagons, by bringing one above and the other below the end of said spar.

No. 14,794.—J. T. Baughman.—*Improved Wagon Tongue.*—Patented May 6, 1856.

The nature of this invention will be understood from the claims and the engraving.

Claim.—1st. Constructing the tongue in two separate parts A and B.

2d. I claim the arrangement and combination of the hounds J J and S S, for the purpose of connecting the tongues A and B together.

No. 15,109.—Lucien H. Allen, assignor to Himself and Edmund M. Ivens.—*Improvement in Casting Car Wheels.*—Patented June 10, 1856.

A core which forms the eye of the wheel, made with a conical hole to fit the nozzle E, is placed on the centre of the mould and supported in the sand in the usual way; the molten iron is then poured into the flask, filling the space from the core to the periphery all round, when a volume of steam is blown through nozzle E by opening the cock F, which displaces the core and causes the red hot wheel to contract very rapidly, whilst the chill B contracts the periphery.

Claim.—Passing a volume of steam through the eye of a cast metal wheel whilst the periphery is in the chill, whereby the contraction of the whee as it cools is equalized.

No. 15,759.—S. B. Fuller.—*Machine for Painting Carriage Wheels.*—Patented September 23, 1856.

The tub B is supplied with the requisite quantity of paint, and the wheel N to be painted is placed on the upper end of the spindle C; the spring E keeping the wheel N above the surface of the paint. The spindle C is then depressed by shoving down the outer end of the lever L, and the wheel N is immersed in the paint and then allowed to ascend to its original position; the wheel J is then rotated and the superfluous paint is thrown from the wheel N by means of centrifugal force.

Claim.—The vibrating and rotating shaft C, passing into the tub B, and arranged and operated as shown, or in an equivalent way, for the purpose specified.

No. 14,434.—Charles Schmidt.—*Improved Method of Boxing Carriage Wheels.*—Patented March 11, 1856.

In working the machine, the wheel W is fastened to the wheel plate *p;* the rest R is then fastened to the bench E, to the right of the centre of the hub, according to the size of the box. The bit T is regulated by the crank *c*, while the wheel is turned by the large crank C.

Claim.—The method of boxing carriage wheels, as hereinbefore substantially described.

No. 15,049.—George W. N. Yost.—*Improved Driving Wheels for Steam Drags and Propellers.*—Patented June 3, 1856.

The inventor says: I do not claim the combined arrangement and construction of devices, as set forth in the case of Heuermann & Reeves, for alleged improvements in grain and grass harvesters, as this could not answer my purpose. Neither do I claim the devices described in the case of J. K. Babcock, for a similar purpose.

But I *claim*, 1st. The combination of the double angular flanges *b b* with the surface of a driving wheel.

2d. Also, in combination with the flanges *b b*, the clearers or cleaners *d* and *g*.

No. 15,554.—Thomas Brownfield.—*Improvement in Wheels for Carriages.*—Patented August 19, 1856.

The plate B of the hub is provided with grooves for the insertion of the spokes; to this is attached a rim consisting of four, six, or eight sections H, each provided with two grooves, according to the number of spokes which the wheel contains; and both rims with the spokes fastened between them are secured together by a third plate (shown at figure 3), by means of screw-bolts passing through the holes *g*.

Claim.—The rim of the hub, which is made in sections, which, being constructed in this manner, will press on all the spokes, and hold them all firm in the hub; and the iron plate which covers these sections, which will bend and let the sections fit the spokes, with the pressure of the screws, and hold the sections in their places, and the nuts on the spokes which hold the fellies and tire to their proper places.

No. 15,339.—A. C. Ketchum.—*Improvement in Railroad-Car Wheels.*—Patented July 15, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Connecting the hub C and rim A of the wheel by fitting a flange D, attached to the hub within a flange B attached to the rim, providing the said flange D with a shoulder *b* and groove *c*, and applying a divided clamping ring E to the said groove *c*, substantially as herein set forth.

No. 15,935.—John M. Sigourney.—*Improvement in Cast-Iron Railroad-Car Wheels.*—Patented October 21, 1856.

This invention consists in the mode of constructing cast-iron car-wheels in the manner represented in the engraving, where figure 1 represents a side view and figure 2 a cross-section, for the purpose of producing the uniform cooling of the whole wheel in every direction and every part when cast.

Claim.—The formation of the hub of an iron wheel cast in one piece, in the manner described, viz., recessing the same by means of annular flanges bordering it inside, outside, or both in and outside, when combined with the single plate and braces, as set forth.

No. 15,092.—William R. Thompson.—*Improvement in Constructing Railway Car-Wheels.*—Patented June 10, 1856.

The buts B are welded together as shown in figure 1.

The inventor says: I do not claim forming the hubs of car-wheels in sections, and welding said sections together, irrespective of the peculiar form of the sides of said sections or buts, as herein described.

But I *claim* having the buts B made the entire length of the hub, and the sides of the buts inclined, curved, or made in zig-zag form, so that they form, when placed together, dove-tail joints, for the purpose of preventing any lateral movement of the buts, and to ensure the perfect welding of the same at all points of contact, whereby a solid and perfect hub is obtained.

No. 15,670.—N. N. Selby.—*Improved Whiffle-tree for Detaching Horses from Carriages.*—Patented September 2, 1856.

The whiffle-tree *a* is constructed in the usual manner with tug-pins *j* at each end. The tug-loops *c* are placed and detached by depressing the spring *b* to the dotted position, or to the shoulder of bolt *f*, the bolt passing through an aperture *m* in the spring *b*.

Claim.—The application of the spring *b* the whole length of the whiffle-tree, and turned over at each end, forming loops for the harness tugs, in combination with the bolt *f*, pins *j j*, and fulcrum *d*, operated by the levers *g* and *h*, substantially as described.

No. 15,460.—George Kenny, assignor to Himself and George N. Davis.—*Improvement in Whiffle-trees.*—Patented July 29, 1856.

The bolt *c* is held stationary in the draw-bar *b;* attached to the under part of the whiffle-tree *a* is a plate *d* having a circular flange *e*, which plays upon the flanges *f* of plate *g*. In the box thus formed by flanges *e* and *f*, a piece *i* of vulcanized rubber is inserted around the bolt *c*. The head of the bolt *c* is protected in a similar manner by means of box-cap *k* attached to the brace *j*, which plays upon the circular flange *l* of plate *m;* in this box a piece of India rubber is inserted, fitting around the king-bolt *c*.

Claim.—The combination of rubber washers with the whiffle-trees, and about the king-bolt and the boxes arranged with the same, substantially as described, so as to protect the rubber and boxes from the entrance of water, dirt, &c., thus preventing the wear of the parts.

No. 15,461.—George Kenny, assignor to Himself and George N. Davis.—*Improvement in Whiffle-trees.*—Patented July 29, 1856.

a represents the whiffle-tree, *b* the draw-bar, the two being connected by braces *c* and *d*; *e* is the bolt upon which the whiffle-tree turns, a tubular piece of India rubber is placed around it and enclosed by a cylindrical strap *h*. The India rubber is thus protected on all sides, excluding all dirt from it, and the wear upon the bolt and the rattling noise which is generally produced are prevented.

Claim.—The combination of rubber about the bolt on which the whiffle-tree turns within the cylindrical strap and between the braces *c c*, *d d*, so that it may be compressed, and thereby operate as a spring, as specified, as well as serve to keep out the dirt and prevent the wear and noise.

XI.—HYDRAULICS AND PNEUMATICS.

No. 14,526.—William Thomas, assignor to Abner Van Horn.—*Improved Cock for Steam, Water, etc.*—Patented March 25, 1856.

The nature of this invention will be understood from the claim and engraving.

The inventor says: I do not claim any part of the invention patented to J. Griffiths, February 14, 1844, it being no part of my improvement.

Neither do I claim the fixed screw-thimble *c*, or the fixed screw-nut *e*, of itself, which are in common use for the support of the faucet-stem, and are made by others as well as ourselves. I therefore wish to be understood as not claiming the combination set forth and used by J. Griffiths.

But I *claim* the position in which the method is employed or used to raise and lower the valve 3, viz: in having the screw-thread cut upon the opposite end from the hand-wheel and inner end of the valve-stem 5 at 6, and a corresponding screw-thread cut within the fixed screw-nut *e*, which is of sufficient depth to allow the screw upon the stem to work sufficiently far to raise and lower the valve, without disconnecting itself, whereby the whole arrangement can be better and more easily and substantially constructed, kept in order, and operated, as set forth and fully described.

No. 14,628.—Charles Harrison.—*Basin Cocks.*—Patented April 8, 1856.

When the plug *e* is screwed down by turning the bent pipe *f*, the valve 3 is compressed on the seat 4, shutting out the supply of water. The screw-stop 6 enters a groove above a collar 7 in such a manner that the screw-plug *e* can only receive a quarter turn, in order to prevent its being turned the wrong way.

The inventor says: I do not claim either a screw-valve or a basin-cock operated by the pipe that passes the water, as these separate articles are well known; but I am not aware that the screw-valve and bent pipe have ever before been combined with the stop 6, that insures the said pipe being turned off from the basin in that direction which is necessary to screw the valve down on its seat, instead of further opening it, as described.

But I *claim* the screw-plug *e* and its valve 3 actuated by the bent pipe *f*, when combined with the stop 6, in the manner and for the purposes substantially as specified.

No. 15,771.—Thomas McDonough.—*Improvements in the Air-Engine.*—Patented September 23, 1856.

A detailed description of this invention would take up too much space to be given here; the main features of it will be understood by reference to the claims and engraving.

The inventor says: I am aware that the alternate expansion and contraction of atmospheric air and other permanent gases have been employed as a motive agent in engines of various constructions.

And I am also aware that the gases so employed have been made to pass alternately in opposite directions through a vessel presenting large amount of metallic surface—so that in passing in one direction, such metallic surfaces should take up caloric from the heated gas when passing in one direction, and transfer it back to the said gas when passing in the opposite direction.

And I am also aware that such metallic surfaces have been composed of a series of metallic disks or sheets of wire-gauze, but so arranged that the air or gas had to pass through the meshes of the wire-gauze, which had the effect of impeding the passage. I do not, therefore, wish to be understood as making claim to any of these things.

I *claim* combining the hot and cold cylinder, or cylinders 1 and 3, by an interposed cylinder 2, substantially as described, to prevent the one from being affected by the temperature of the other, as set forth.

Also the working piston or pistons 9 working in the cold cylinder 3, in combination with the dumby piston or pistons 7 and 8 which extends from the cold to the hot cylinder, substantially as and for the purpose specified. Also the vertical position of the pairs of cylinders, substantially as described, that the heated part of the engine may be above the cold parts, for the purpose set forth, in combination with the means herein described for keeping the lower part of the engine cold, substantially as described.

Also, the arrangement of the metallic surfaces through which the air or other gases pass, by making such metallic surface of sheets of wire-gauze *n* rolled up and placed in a surrounding vessel 4, so that the air or other gas shall pass in films between the several coils, substantially as and for the purpose specified, in contradistinction to passing through the meshes of wire-gauze, as set forth.

No. 14,922.—Augustin Miller.—*Improved Hydraulic Engine.*—Patented May 20, 1856.

The valve V being in a position as shown in figure 2, the rod R which is attached to the cross-head H moves the tumbler past the centre of tension of the spring S; the tumbler T shifts the valve to the opposite side. Now, in regulating the force, it becomes necessary to close the induction valve before the piston has arrived at the end of the chamber, and the piston still advancing would form a vacuum behind it, and to avoid this each chamber is furnished with a relief pipe *c c*, leading up a little above the top of the water in the flume B.

The inventor says: I do not claim the invention of hydraulic engines, as they have been used before.

But I *claim* the combination of the cut-off motion with the relief pipes *c c*, for the purpose of cutting off the stroke at any desired stage, without being compelled to waste the power by working the piston against atmospheric pressure.

No. 14,690.—John Ericsson.—*Improvement in Air-Engines.*—Patented April 15, 856.

The present invention relates to an improvement of the air-engine for which the inventor obtained letters patent, bearing date the 31st day of July, 1855. The leading feature of this improvement consists in operating with one piston *b*, within a cylinder *a*, in such a manner that one side of it shall compress the cold air which on the previous stroke entered one end of the cylinder, and cause it to pass through the regenerator and heater *l* or either, at the same time that the other side of said piston is receiving the motive force of the heated air; which simultaneous operation will result in avoiding friction on the packing of the piston, and also that leakage through the packing of the piston will not occasion any loss of air out of the engine, as the compression on one side of the piston, and the motive action of the heated air on the other side take place simultaneously at the time that all communication with the atmosphere is closed.

The inventor says: What I *claim* as my invention in the engine producing motive power with heated air is, by means of a piston *b* working within a cylinder *a*, under a mode of operation substantially such as described, performing the successive combined operations of simultaneously discharging the heated air, and taking in the charge of cold air, compressing and transferring it to a regenerator and heater or either, and thence to the opposite end of the cylinder, to act upon and impel the piston.

No. 14,089.—John P. Cowing, Philo Cowing, and George Cowing.—*Improved Method of Operating Fire Engines.*—Patented January 15, 1856.

The operation of this machine will be understood from the claim and engravings.

Claim.—The arrangement of the toggles G G, shaft D, arm F, and rods *d d* for operating the pistons H H, substantially as shown and described.

No. 14,429.—Moses Woodbury.—*Improved Faucet.*—Patented March 11, 1856.

The nature of this invention consists in so constructing a stop-cock that it will open and let the water out whenever the pressure exceeds a certain limit.

The spring *s* regulates the required pressure. The piston rod terminates in an eccentric, with a throw sufficient to raise the piston, and turns between two projections T T on the cap C, which projections serve to keep the eccentric in its proper position. By carrying the lever L to the position represented by broken lines, it will remain in this position until turned off.

Claim.—The combination of the handle L, constructed as specified, with the stem and spring, when the latter is placed behind the valve V, substantially as set forth.

No. 15,459.—Joseph Goodridge, assignor to the Boston Faucet Company.—*Improved Faucet.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Combining with the valve B and its stem C the dovetailed recess *d*, the expander *h*, shoulder *g*, and screw *e*, or the equivalents thereof, whereby the foot of the spring packing D may be fastened into the valve, substantially in the manner and for the purpose as specified.

No. 15,719.—Joseph Goodridge, assignor to the Boston Faucet Company.—*Improved Faucet.*—Patented September 9, 1856.

This invention consists in applying a metal ring c^1 to be inserted between the India-rubber spring C and the cap *d* of the cock, for the purpose of preventing said India-rubber from becoming fixed to said cap by oxydation of the metal, or otherwise; and also in giving the India-rubber spring C a conical shape, for the purpose of preventing a contact of said spring with the sides of the neck.

Claim.—Arranging between the caoutchouc spring and the screw cap of the neck of the faucet a metallic annulus or guard ring, in order to prevent the adhesion of the cap to the India-rubber spring; not meaning to claim a metallic washer, as ordinarily used, but the specific application of a metallic ring to prevent a difficulty incident to the peculiar relation of parts, as described.

Also, the arrangement of the annular groove in the stem of the valve, and with reference to the sides of the spring or valve chamber, in manner and for the purpose, or so as to produce the new and useful

result, as specified, the said groove being intended to receive the foot of the spring made tapering, or frusto-conical, in manner and for the purpose of preventing it from being caused to adhere to the sides of the said chamber by oxydation of the metal, under circumstances as expressed.

No. 16,043.—Frederick H. Bartholomew.—*Improved Anti-Frost Faucet.*—Patented November 11, 1856.

The nature of this invention consists in providing the barrel of a cock with two grooves A C, extending about one-fourth around the internal circumference of the barrel, so as to form passages between the discharge end of the cock and the water-way B of the plug when the plug is in a shut position, the groove A acting to admit air into the plug, and the water being discharged from the water-way B through the passage C. By this arrangement the cock is prevented from freezing, as there is no water retained in the passage B.

Claim.—The application of a waste way to draw-cocks, arranged and operating substantially as and for the purpose described.

No. 16,232.—George H. Fox and Henry J. Seller.—*Improved Filtering Faucet.*—Patented December 16, 1856.

The water enters the pipe H, and ascends through the groove *b* of plug B, and passes through filter E, leaving its sediment on the lower side of the filter, fills chamber D, flows over the top of pipe G and down through it and the opening in the centre of plug B and out at nozzle J. When the plug B is turned, by means of the handle C, part way around, the groove *b* (fig. 2) is moved away from pipe H, and the flow of water up through the filter is stopped, the groove *b* is brought in correspondence with groove *e;* the passage *d* being also opposite the lower part of groove *e*, thus a passage is established from the lower side of the filter through *b*, *d*, and *k*, to the outlet J, allowing all the water contained in chamber D to flow back through the filter and out at the nozzle, washing off any sediment that may have collected on its lower side.

Claim.—Causing a portion of the water which has passed through the filter to return in the opposite direction whenever the cock is closed after using it, for the purpose of cleansing the filter, as set forth.

No. 14,734.—Edwin A. Palmer.—*Improved Measuring Faucet.*—Patented April 22, 1856.

The knob E is raised up to the hub C, whereby the valve *b* is opened. The piston F is then raised up, which is done by continuing to elevate the knob until raised to the desired place indcaited by the index. The knob E is then allowed to sink and close the valve. Thus the desired quantity is divided off.

The inventor says: I do not claim any of the principles involved in

the common faucet or stop cock, which is generally known; but I claim the perforated piston F in combination with the valve *b* and knob E, arranged substantially as described, and for the purposes set forth.

No. 15,263.—James H. Wright.—*Improved Filter Attachment for Faucets.*—Patented July 1, 1856.

When the valve F is closed and cock D open, the water will pass into *f* up through the filtering material G, and out through the pipe C; but when D is closed and F is open, the water will escape through the pipe E. The filtering material is kept clean by means of the bars *b*, which direct the water from the pipe I over the whole under surface of the filtering material.

Claim.—Placing the filtering material or medium G within the chamber B of the faucet, and above the pipe I, and having a pipe C and cock D at the upper end of the chamber, and a pipe E and cock F at its lower end, substantially as described for the purpose specified. I also claim placing the filtering material or medium G upon the bars *b*, arranged as shown for the purpose specified.

No. 15,430—Patrick Mihan —*Improved Method of inserting Faucets into Fluids under Pressure.*—Patented July 29, 1856.

The tube A is fastened to the cask, and the thimble B, which is open at one end and shut at the other, is provided with a screw thread corresponding with the screw thread *b*, and can thus be screwed into the socket tube A. The faucet can also be screwed into the socket tube by means of the screw *c*, and the projections *i*, fitting into the recesses *h*, will screw the thimble B in the same direction with the faucet. The flanch *e* fits in the corresponding recess of the socket tube A. If the faucet is to be inserted into the cask, it is screwed into the tube A, thereby screwing the thimble B also inward; and when the holes *g* are past the socket tube the fluid will flow through these and out of the faucet.

Claim.—The faucet receiver, as composed of the socket tube A and the perforated thimble B, applied together by means of screws and operated by the action of the faucet, substantially in manner and for the purpose as specified.

No. 15,027.—Chapman Warner.—*Improved Filter.*—Patented June 3, 1856.

The water in A to be filtered will pass through valve I and tube C, up through the filtering materials F H into B, wherefrom it may be withdrawn by pump J.

When the filtering material becomes foul, it is cleaned by closing valve I, inserting pump J in the tube D, and drawing the water in B through the filtering materials up through tube D.

The inventor says: I do not claim withdrawing the fluid in the opposite direction from that by which it entered, for the purpose of cleaning the material; nor do I claim combining two vessels so as to allow the fluid to descend from the one below the filtering material and thence upwards through it into the other vessel, irrespective of the method described. Therefore, I *claim*, 1st. Constructing the cistern, vessel, or reservoir A, with an inner well or vessel B, the lower part of which projects below the bottom of the cistern or vessel A, and is provided with any proper filtering material; the lower part of the well or vessel B communicating with the lower part of the vessel A by a tube C, provided with a gate or valve I and a suction tube D, also communicating with the lower part of the well or vessel B.

2d. The flanch G attached to the inner side of the well or vessel B, between the layers F H of charcoal and sand.

No. 15,646.—David N. B. Coffin, jr.—*Improved Filter.*—Patented September 2, 1856.

The fluid to be filtered passes through the opening *b* of the filter case, which can be fastened to a proper vessel by means of its screw. The fluid strikes the filter C in an oblique direction, so as to prevent the impurities from adhering to the filter; said impurities can be washed out through the opening *e*. The filtering medium consists of a diaphragm composed of one or more layers of cloth, filtering paper, &c., which are fastened to the filter case as illustrated in the engraving; the filtered water passes out through the opening *m*.

Claim.—The method, substantially as described, of applying the filtering diaphragm, and also combining therewith the additional layers, as and for the purpose set forth.

No. 15,363.—William Wickersham.—*Improved Filtering Medium.*—Patented July 15, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—1st. The use of a disk in water filters, formed of flattened wire or narrow strips of metal grooved transversely by either milling or engraving, in such a manner that when said strips are formed or wound into a disk, said grooves will form apertures for the water or other fluids to pass through said disk in the process of filtering, as herein described.

2d. The method of making the filter disk less liable to injury, and more firmly, by inserting pins from the edges to or nearly to the centre through the different layers of metallic strips of which it is made, to hold them in their places; this method of fastening the disk together I claim only in combination with the spiral-filter disk.

No. 14,692.—R. L. Hawes.—*Improved Diaphragm Fluid Metre.*—Patented April 15, 1856.

This invention consists in the use of a diaphragm or sack of India-rubber, of a capacity greater than that of the portion of the metre in which it operates; this sack D, as it fills with water and expands, being allowed to press against and give motion to one of the disks E and E^2, to which the registering apparatus is connected.

Claim.—The elastic diaphragm D, so constructed and arranged as to operate without attachments to the moving parts and without being subjected to strain.

No. 16,284.—William Mason.—*Improved Device for Operating Fluid Meters by Hand.*—Patented December 23, 1856.

To operate this meter the faucet plug E is turned to open the passages, and the fluid entering the chamber C or C^1 exerts a pressure on the India-rubber diaphragm B, and forces the same towards the disk A^1 or A until it fits closely thereto, thereby causing the fluid in the other chamber to be expelled through the outlet. As soon as one chamber is thus filled and the other emptied, the faucet plug E is turned half way round, and the fluid is then admitted to the chamber previously emptied, and the same operation repeated.

Claim.—The two concave flanched disks and the flexible diaphragm, combined as described, and provided with any suitable arrangement of passages and with a faucet, or its equivalent, to change the passages to admit water to each side of the flexible diaphragm alternately, the whole operating as and for the purpose set forth.

No. 14,982.—I. Willard Fox.—*Improved Method of Drawing Fluids from Bottles.*—Patented May 27, 1856.

The socket A, which is made circular, is connected with a square box C^1, which contains the plug D and its India-rubber packing E. When this faucet is applied to the nose of a bottle, the end of the bottle nose is screwed against the packing, so as to pack the space tight between the end of the nose and the plug of the faucet.

The inventor says: I am aware that the plugs of faucets have been surrounded with leather, gutta percha, and some other similar substances, to pack them; therefore I do not claim broadly surrounding them with such substances.

But I *claim* packing the plugs D of faucets with India-rubber, gutta percha, leather, or some other similar substances, when the same piece which packs the plug is made to pack the end of the bottle nose, pipe, tube, or other articles to which the faucet is applied.

No. 15,853.—Samuel Krauser.—*Improved Method of Measuring Fluids while Drawing.*—Patented October 7, 1856.

The operation of this apparatus is as follows: The pin *m* being first properly placed for the quantity which it is desired to measure and

draw, and the valve *c* being over the opening *b*, the tube C and plunger F are raised up by their levers E L, and then the tube is brought down to its seat, and the quantity which it cuts off from the mass of liquid in passing through it, and which it contains between the plunger F and the valve-plate *c*, is the measured quantity for which the pin *m* was set. By opening the valve *c* the measured quantity will run out.

Claim.—Severing or separating a given quantity of liquid from a mass or column by a travelling tube and plunger, operating together substantially as set forth.

Also, the gauge-plates N N N, in combination with the valve-seat or packing of the plunger fitting thereto for adjusting the measuring apparatus to the exact quantity to be drawn, substantially as specified.

No. 15,177.—F. Espenschade.—*Improved Method of Cooling and Drawing Fluids from Casks, &c.*—Patented June 24, 1856.

The chamber E is filled with ice; the faucet H being open, the liquid in the barrel A will pass down the pipe G and fill the vessel C. The liquid in the vessel C is drawn therefrom by opening the faucet O and depressing the treadle L, the piston-head J forcing the liquid through O, and at the same time closing the valve N.

Claim.—The vessel C provided with an ice chamber E, and having a pump connected with it, and the vessel communicating with the barrel A by means of the pipe G, the above parts being arranged substantially as shown for the purpose specified.

No. 15,385.—James P. S. Otterson.—*Improved Method of Tapping Fluids under Pressure.*—Patented July 22, 1856.

The flange F of the chamber C^1 is tightly attached to the vessel or pipe to be tapped, and the hole is drilled by means of the drill D^1 of shaft D working in screw-threads S and S^1. When the hole is drilled, the chamber C^1 becomes filled with water, but is kept tight by the stuffing-boxes *g* around the spindles D, E, and I; the plate C is then turned by inserting a lever into the hole o^1, so as to bring the tap E^1 opposite the hole made by the drill D^1, and said hole is tapped out to correspond with the screw of the cock I^1. The tap is then withdrawn, the plate C turned another part of a revolution to bring the cock I^1 opposite the hole; it can be screwed into said hole by turning the rod I, and this done, the entire apparatus can be removed, leaving the cock I^1 in the drilled hole.

Claim.—1st. The employment of a chamber C^1 of sufficient capacity to contain the cock I^1, together with the necessary tools for inserting the same in any pipe or vessel containing water under pressure.

2d. The employment of the rotary plate C, or its equivalent, working in or forming part of the chamber C^1, for the uses and purposes specified.

I do not limit my claims to the particular form of plate or chamber as shown, but extend it to any other substantially the same.

No. 15,716.—Robert F. Brower, assignor to Samuel A. Brower and J. L. Brower.—*Improved Method of Drawing from Manufacturing Enclosures Waste Gases, Steam, &c.*—Patented September 9, 1856.

The nature of this invention consists in drawing the unhealthy air, gases and steam from rooms, by the use of a ventilator C, drawing said air from a receiver A and through a pipe B, and discharging the same outside the building, for the purpose of avoiding unhealthy currents of air, the fresh air passing in through any open spaces in the wall.

Claim.—The operation of drawing off waste steam or gases, by mechanism or heated currents, from buildings or apartments where drying, steaming, or chemical operations are conducted, after the manner substantially as set forth.

No. 15,256.—Daniel Robinson.—*Improved Balance-Gate for Flumes in Water-Power.*—Patented July 1, 1856.

As the gates B B are connected by the bars *c*, the pressure exerted against one gate is counteracted by the pressure on the other gate, and the gates may be operated with but little power. The tube C and valve *d* serve to admit the air, in order to prevent the water from suddenly rushing into it when the gates are opened.

Claim.—The two sliding gates B B placed at opposite sides of the penstock A, and connected by bars *c*, substantially as shown, for the purpose specified.

I further claim the tube C and valve *d* applied to the penstock, as shown, for the purpose specified.

No. 14,602.—George W. Flanders.—*Improved Flood Gate.*—Patented April 8, 1856.

a a represent the gudgeons of the gate, and *b b* the sockets. The gate is stiffened by means of the rail *c*. C C are posts attached to the flume, which serve as bearings for the elevated gate.

Claim.—Constructing the gate B of one part, and hanging or hinging its lower end to the apron or bottom of the flume A, substantially as described.

No. 15,846.—S. M. Ferry, assignor to James T. Ames.—*Improvement in Hose Coupling.*—Patented October 7, 1856.

The flange *b b* of the cylinder B is inserted into the hook-shaped flange *a a* of the cylinder A, and the flanges *k* are fastened to flange a^1 by passing a wedge through the staple *c*. The two cylinders are pressed firmly against the packing *l*, thereby making a water-tight joint; the cylinders A and B can be used as hose-couplings by attaching to them the hose in any well known manner.

The inventor says: I do not claim any of the parts separately.

But I *claim* the combination and the application of the various devices described, for the purpose of coupling firemen's hose.

No. 14,090.—C. J. Cowperthwaite.—*Improved Hydrant.*—Patented January 15, 1856.

The cap K is made elastic, to permit the rod H to be operated by means of hand-lever I. This hydrant may be readily disconnected from the main by merely turning rod E. The valves or any parts of the hydrant can be examined and withdrawn from the case A, by removing the cap N. O is a small valve operated by an arm *f* attached to rod H. Valve O is open when valve G is closed, and *vice versa*.

Claim.—The cylinder F fitted over the conical projection on the case A, said cylinder having valves G O within it, and an elastic cap or covering K through which the valve-rod H passes, and to which cap said rod is attached, the cylinder being secured on the conical projection by means of the bent rod M and cap N of the case A, substantially as shown for the purpose specified.

No. 14,557.—Henry English.—*Improved Hydrant.*—Patented April 1, 1856.

The valve-box A is divided into an upper and lower chamber, which communicate with each other by means of a passage which is controlled by the hanging-valve *b*. *c* is a leather washer. When the valve is pressed down from its seat *g g*, the water passes into the cavity *d d* of the cap-piece D, and thence through the openings *f f* into the circular channel *e e*, which latter communicates with the discharge-pipe C.

The waste-vent *h* connects with the groove J in the valve-stem G. This shank G is made four-sided, so that the side which contains the groove J can be placed in such a position as not to connect with the waste-vent *h*.

The downward motion of the coupling H closes the vent *h* by means of the leather washer K and opens the valve *b*, and its upward movement will close the valve *b* and open the waste-vent *h*.

Claim.—The combination of the square-shanked valve and its seat with the cap-piece, in the manner and for the purpose substantially as described.

No. 14,805.—C. J. Cowperthwaite.—*Improved Hydrant.*—Patented May 6, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—1st. The employment or use of the case or protector J, so connected with the valve-rod G that the valve F will be opened when the case or protector J is moved aside to expose the nozzle C, and the valve closed when the case or protector is moved over the nozzle.

2d. I claim the slide-valve F, arranged or applied to the cistern E, as shown, viz: the valve being fitted within the cistern, and connected with the rod G, through the waste-water passage *a*, whereby the valve

is made to work water-tight, and the use of a stuffing-box and packing avoided.

3d. I claim securing the cistern E, with the pipe D and valve F attached within the case A, by means of rod M, whereby the above parts may be readily detached from the case and secured within it.

No. 14,962.—Charles K. Landis.—*Improved Arrangement of Means for Operating the Valves of Steam Hydrants.*—Patented May 27, 1856.

When the float *d* rises, it lifts the rod *l*. When the ball and lever *n* have passed their vertical position, the crank *m* lifts the lever *o o* with the rod *p*, and opens the slide-valve *i*. Steam is then introduced, which opens the top and closes the bottom of the double valve *q*, and the water will be forced through the valve C and pipe *a a* up to the required level. When the float reaches the bottom of the reservoir F, it brings the lever and ball *n* to their former position by means of stud *r*, rod *l*, and crank *m*; thereby closing the slide-valve *i* and opening the double valve *q*, allowing the surplus steam to escape. The remaining steam will now be condensed, and the water W W will be forced up through the strainer *g*, valve C, and pipe *b b*.

The valve *q* will be closed again by the pressure of the atmosphere.

Claim.—The combined mechanism of the float *d*, slide-valve *i*, and double valve *q*.

No. 14,592.—Edward John Baker.—*Improved Waste Attachment to Hydrants.*—Patented April 1, 1856.

The object of this invention is to obviate the disadvantages (freezing and wasting of the water) which arise from the use of a waste vent.

The chamber E absorbs the contents of the discharge pipe F when the piston G is raised. The downward motion of the said piston forces first the water back into the pipe F, and then opens the valve C between the main pipe B and the discharge pipe by means of the piece *q*.

Claim—The application to a hydrant of the receiving chamber and piston, constructed and operated in the manner and for the purpose substantially as described.

No. 14,712.—John Culver.—*Improved Waste Device for Hydrants.*—Patented April 22, 1856.

The lifting of the plunger G to position shown in fig. 1 causes spring H to act upon valve C, and to force packing I close to the seat, and thus cut off a further supply. The water left in the discharge pipe flows back into the chamber formed by the elevation of the plunger, and remains there, together with a portion at the same level in pipe E, beyond the reach of frost.

Claim.—The described arrangement of the plunger G relative to

the discharge pipe E, and capable of elevation proportional to the capacity of said pipe for forming a chamber in the lower portion of the hydrant for the reception of the contents of the discharge pipe.

No. 16,061.—Robert Lawson.—*Improved Waste Valve for Hydrants.*—Patented November 11, 1856.

The water, entering the receiving pipe at J, passes up around the valve-stem D in the sleeve M, and out through the aperture N in the distributing nozzle F. If it is desired to stop the ingress of water to the valve, and to waste it out of the distributing pipes, the valve-stem D is closed; which closes the valve E and opens valve B, stopping the ingress of the water to the valve and allowing it to fall back out of the distributing pipes in the sleeve M, and to pass up around the stem D and out through the valve B, where it is wasted.

The inventor says: I *claim* the interior arrangement and combination of water-valve and air-chamber, as shown and described.

I do not claim the application of an air-chamber to the receiving pipe.

But I *claim* its peculiar combination with the waste-valve, as set forth.

No. 14,335.—John S. Barden, assignor to Himself and Aaron W. Rockwood.—*Improved Water Metre.*—Patented February 26, 1856.

It will be understood that by applying to the crank-shaft Y a mechanism indicating the number of revolutions it may make, the water can be readily measured which has flowed through. The section fig. 3 is represented on a larger scale than the rest of the figures.

Claim.—A partitioned hollow cylinder or chamber A, and two series of induction and eduction passages B C, arranged with respect to the partition *a* of said chamber substantially as described, in combination with three or any other suitable number of oscillating cylinders D E F and pistons R R R, connected together and applied to the partitioned cylinder and made to operate essentially as explained, and for the purpose of receiving and discharging water or any other fluid, or measuring the same, as set forth.

Also, combining each oscillating cylinder with the partitioned cylinder by a yoke G, screw-bolts H H H, and pressure-springs O O O, or their mechanical equivalents, arranged and operating together substantially in the manner and for the purpose as set forth.

Also, making the bottom of each cylinder dishing or concave below the lower terminus of the path of the piston, and towards the passage of said bottom, as specified, the same being for the purpose as set forth.

No. 15,712.—George Trott, R. H. Coles, and William A. Clark.—*Improved Mode of Suspending Hydraulic Puppet Valves.*—Patented September 9, 1856.

The ball *v* attached to the upper end of the upper shank of valve *d*, which fits loosely in the socket formed in the lower end of the valve stem *f*, is held therein by a pin *u* passing under the ball, but so arranged as not to interfere with the free motion of the valve. In the bottom of the valve is loosely fitted an anti-friction disk *i*, against which the ball *v* bears. This enables said bolt to move freely in the socket, whereas otherwise there might be sufficient friction against the unyielding bottom of the socket to materially impede the motion of the valve.

Claim.—The combination of the ball, loose socket, and anti-friction washer, when employed to connect an elastic or yielding valve with its stem, substantially as set forth.

No. 16,049.—J. Henry Darlington and William Piper.—*Improved Diaphragm Fluid-Metre.*—Patented November 11, 1856.

The water passes up from the induction pipe E, through the centre of the metre, in the direction of the arrows down through the water channel M, and drives the diaphragm H P on the left to the right. By this motion the lever J of the fulcrum *c* operates the slide valves E, and closes the passage M on the left at the same time as it opens the similar passage on the right. In this way the water causes an intermittent reciprocating motion to be kept up, each diaphragm working the opposite valve; and the water is discharged in such quantities as the reservoirs hold, and is measured and determined by the registering apparatus, consisting of ratchet wheel Q, pawls *i* and *h*, and springs *j k*.

The inventors say: We do not claim any of the separate elements or devices; nor do we claim any special combination thereof.

But we *claim* their particular arrangements as hereinbefore and for the purpose set forth.

No. 14,029.—James Neal and Charles W. Emery.—*Pump.*—Patented January 1, 1856.

The nature of this invention will be understood by reference to the annexed claim and corresponding illustration.

Claim.—We are aware that the lever or levers for working the piston rod of a pump have been supported either on the pump-barrel, or on a rotary cap-plate, fitted on the top of said barrel; we therefore do not claim such.

But what we do claim as our invention is, supporting the brake posts H and I, by means of an annular ring F, made to encircle and rotate on the neck *d d* of the base plate C, or stand of the pump-barrel, when the pump-barrel is applied to the base-plate, so that it may turn independently on said base-plate, and be screwed or fastened to it.

No. 14,024.—Charles N. Lewis.—*Improved Pump.*—Patented January 1, 1856.

The interior cylinder is placed immediately on the valve plate E, which fits within the sides of the base N, and has upon it two induction valves F F. Two projections *q q* are cast upon the valve plate E, which fit into the holes *q q* of the flanges K. The outer case P P is fastened to the base N over the interior cylinder, forming an air chamber. A tube S S around the stem A of the piston B is attached to the top of the case, and extends down to the bottom of the basin C, so that its lower end shall always be under the surface of the water within such basin, the same serving as water packing to the piston-rod, in place of a common stuffing-box.

Claim.—The basin C or its equivalent, for the uses and purposes above set forth; and in combination and connexion therewith, I claim the arrangement and construction of said pump, as above specified.

No. 15,878.—William T. Barnes and Jacob Barnes.—*Improved Pump.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—1st. The employment of the priming reservoir U, or its equivalent, which is connected to the pump T, and fills it with water by the action of the pump; which water is held by the supporting box V, or its equivalent, and can be discharged to prime the pump by pulling the cord W, or its equivalent, for the uses described.

2d. The combination of the levers G G, with the piston rods E E, and the connecting rods H H, and rocking beam K, in manner shown for the purposes set forth.

No. 14,884.—Thomas H. Powers.—*Improved Cattle Pump.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I do not claim operating the platform and raising water by the weight of the cattle; but I *claim* the specific manner whereby the platform may be placed at a distance from the well.

No. 14,576.—John R. Sees.—*Improved Method of Varying the Stroke of Feeding-Pump for Steam Engines.*—Patented April 1, 1856.

By moving the lever F to the extreme left end of the arc G, the sliding block D is raised to the upper end of the arm C of the rock shaft, so that the piston of the pump L remains stationary. By moving the lever F to the opposite end of the arc, the block is carried down and the pump receives its maximum throw. The length of stroke of the pump can thus be regulated from a minimum to a maximum.

Claim.—The use of an intermediate arm or lever between the moving power that works a force or supply pump, attached to a steam boiler and the pump, with an adjustable sliding block, movable on said arm or lever, as herein described, or any analogous arrangement substantially the same, which will produce the desired effect.

No. 14,039.—George Williamson.—*Hydro-Pneumatic Pump for Diving Bells.*—Patented January 1, 1856.

This improvement is for the purpose of supplying the leakage water to the air pump *a*, and thus keeping the valves *d* and *e* moist and tight, and disposing of the surplus water which is forced through the pump with the air; and secondly, cooling the air by surrounding the valve chamber *f* with water, and causing the air to pass therefrom through the pipes *m* to a condenser *p*, through a cooler supplied with cold water, which is necessary to prevent making steam. The piston rod a^2 connects the piston *a* with a steam engine; there is always a sufficiency of water in the cylinder *a* and chamber *b* to fill the latter; after the water is all expelled from the cylinder, and when the piston recedes to the opposite end of the cylinder, the water flows in behind it, and draws in its equivalent in bulk of air and water through valve *d;* on its return this is forced out of valve *e* into the chamber *f;* the water being non-elastic, if the parts are kept cool enough not to raise steam, allows this process to be continued. But for this cooling process the water packing would become rapidly heated, and, raising steam, stop the pumping of air.

Claim.—1st. The arrangement and combination of the pump cylinder, chamber *b*, and their valve arrangement; by which a proper supply of water is kept up and the air pumped, as specified.

I also claim refrigerating the air by extracting the caloric therefrom, after it has passed the pump, by means of the water bath surrounding the valve chamber and eduction tubes, substantially as set forth.

I also claim the float reservoir connected with the eduction pipe for separating the water from the air, as specified.

No. 15,173.—Stephen D. Carpenter.—*Improvement in Rotary Pumps.*—Patented June 24, 1856.

2 and 3 represent the two semi-spherical shells which are bolted together by the flanches A, and the inside bored out to form a perfect sphere.

L, L, L, (fig. 2,) represents the side view of the propeller, and its connexion with the cones D D, said cones being permanently attached to the shaft J J. E, the disk to which are attached the elliptical cogs *h h h h*, which work into, and match with, corresponding cogs on the cones, as seen at D D, fig. 3. These cogs are intended to produce a greater bearing surface than could be obtained by the contact of a plain surface revolving on the cones, and hence remove, in a great degree, the liability of leakage.

The disk E E, is constructed of a larger circle than the cones and shells, so as to have a bearing in the groove diagonal to the shaft, the said groove serving to keep the said disk in its place. The object of said disk is to divide the globe into two chambers; and its bearing on the surface of the cones serves as a cut off, or, more properly, answers the purpose of the ordinary valve in pumps, as, by its connexion with the "propeller," no communication exists between the orifice of induction and eduction, W and X, and whatever fluid enters either chamber must remain there until forced out by a rotary motion.

Claim.—The cones D D, connected by the propeller L L L L, in combination with the diaphram or disk E E. Also the semi-spherical shells, 2 and 3, fig. 1, in combination with the conducting pipes.

No. 14,186.—Edward N. Dickerson and Elisha K. Root.—*Improvement in Pumps.*—Patented February 5, 1856.

Each of the two buckets C is driven by a cam *A*, which consists of a spiral surface *a a a*, so constructed as to elevate the bucket with uniform velocity, while the rest of the surface, *a b a*, lets the bucket down with accelerated speed. The effect of this construction is, that the water, which the lower of the two buckets is driving with uniform speed, is passing through the upper one, which is descending to renew its stroke, and whose valves are therefore open; and before the lower bucket ceases to drive the water, the upper one has descended, commenced its ascent, and has overtaken the current in which it moves, so that its valves are closed and it is moving upward at the uniform speed designed and dividing the load with the lower bucket; the speed of the lower bucket is then gradually diminished as the second half of the spiral curve comes into action, and the entire load of the column is insensibly transferred from the lower to the upper bucket without causing variation in the speed of the column of water.

Claim.—1st. Two buckets working in pump barrels, so arranged that the column to be raised passes through both, in succession, in combination with the spiral cams, or their equivalents, so arranged as to move said buckets with uniform volocity and to maintain practically a uniform and constant lifting action upon the water, substantially in the manner described.

2d. Imparting to the column of water, by means of a reciprocating pump, a constant and uniform flow through the ascending main, substantially as herein described.

No. 15,888.—Edwin T. Ligon.—*Improvement in Pumps.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claims and the engravings.

The inventor says: I do not claim a reciprocating piston working in a pump-barrel and provided with two valves, when said barrel is fur-

nished with two on each side of the piston, and only one eduction pipe—my pump, as described, having two induction passages, and one eduction passage—each stroke or vibration of the piston, when the pump is elevating a liquid, causing such liquid to be drawn at once through both induction passages, and be discharged out of the central discharging chamber of the piston.

But I *claim* the combination and arrangement of the two induction passages or branches *c d* by valve-chamber D E, their four valves F F and G G, the receiving and delivering chambers *g g f*, their four valve-openings *i i i i*, provided with a separate valve to each, or one vibrating plate K, made to operate between them, substantially as specified; the piston being provided with an eduction opening or passage, and the whole being arranged and made to operate within a cylindrical case A, essentially as specified.

I do not claim a valve made to operate in connexion with two valve openings only, or so as to close them alternately.

But I *claim* combining and arranging four valve openings *i i i i*, with one vibrating plate K, as described, so that it may vibrate between them and opposite sides of it, and cover two of them at the termination of each of its vibrations.

No. 15,922.—John P. Cowing.—*Improvement in Pumps.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim an oil or water chamber for keeping the pump cylinder air-tight, irrespective of the arrangement of the same; neither do I claim as new the air-chamber valves and water passages, for they are essentially the same as in many other pumps now in use.

But I *claim* the auxiliary cylinder F placed on the top of the pump cylinder C, and so arranged as to form a reservoir for oil or water around the stuffing-box H and piston, and at the same time to support a guide L for the piston, which may be turned in any desired direction.

No. 16,229.—Jabez Coney.—*Improvement in Pumps.*—Patented December 16, 1856.

Rotary motion being imparted to shaft *c*, the oblique disk *c* operating on the steel balls *f*, which rest in the adjustable steel sockets *e*, imparts to the pistons *d* a reciprocating movement, working the pumps in the usual manner. The working parts are enclosed in an oil-cylinder *p*, as stated in the claim.

Claim.—1st. Producing the reciprocating movement of the pump pistons by the oblique disk, steel balls, and adjustable steel sockets, constructed and operating substantially as described.

2d. Constructing and arranging the duplicate cylinders with their double-acting pistons in any odd numbers, five being the best, around

the driving shaft with its oblique disk, so as to be operated thereby from the centre, substantially as described.

3d. Enclosing the working parts in an oil-cylinder to keep them lubricated and free from dirt, substantially as described.

No. 14,372.—HIRAM SMITH.—*Improvement in Air Escapes for Pumps.*—Patented March 4, 1856.

Claim.—The employment of tubes $s\ s^1$, arranged to take the accumulating air from the top or upper portion of the receiving valve-chambers and conduct it below the valve seats into the water-discharge of the pump.

No. 16,024.—JOHN ROBINGSON.—*Improvement in Chain Pumps.*—Patented November 4, 1856.

Motion being imparted to the discs *a*, the buckets F will pass around the discs B, and will become filled in passing through the water below. The buckets as they arrive at the top of the wheel are tilted as they strike against the bars G, and the contents of the buckets are discharged into the troughs D, and when these troughs descend a small distance the water passes into the spout H.

The inventor says: I do not claim the drum or wheel B, with the buckets hung as described in it, and tilted by striking a stop, the bucket chains passing round the sides of the drum; as such and many other parts or details are common to chain bucket pumps.

But I *claim* providing the wheel B, having its buckets and chains arranged as described, with a partition C, forming troughs D D, and tilting-stops or bars G, arranged relatively to each other, and rotating together with the wheel and its buckets for operation together, as specified.

No. 15,070.—ROBERT B. GORSUCH.—*Improved Method of Effecting Uniform Pressure upon the Pumping Piston of Double-Acting Steam Pumps.*—Patented June 10, 1856.

The arm R having been brought in contact with the stop j^1 of rod *f*, and having thus forced the steam-valve D partially across the ports, carrying with it the secondary piston *e*, the engine reverses. The water immediately finds its way through the holes in valve *h*, and forces down piston *e s* until its upper end passes the diaphragm *c*, and comes within the action of the static balance-chamber S, which then continues the valve *e* rapidly, by this means moving the steam-valve the full distance through which it should pass after the engine has reversed, thus securing a perfect valve-motion, by quietly supplying the motion at each successive stroke not obtained at the termination of the preceeding one in consequence of insufficient force or momentum in the moving parts.

The inventor says: I disclaim effecting a connexion between the

water on both sides of the piston or plunger, or between either end of the pump-cylinder and the forcing-main above the force-valves, except through said valves in the ordinary action of the machine, at any time or for any purposes whatever. Neither do I claim operating the steam-valve in direct-acting steam-pumps by a secondary piston, as they have been used in various combinations for that purpose. But I *claim* the secondary piston *e*, in combination with the pump-cylinder, depending for its action upon the static balance-chamber S, and the reverse motion of the pump-plunger, combined or either separately, for attaining the end in view, substantially as described.

No. 15,134.—John C. King.—*Improved Valve for Double-Acting Pumps.*—Patented June 17, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—A single pump-valve E, with two chambered faces, standing at an angle to each other, and operated by the pressure of the water from the pump-cylinder, to answer as suction and delivery valve to a double-acting pump.

No. 14,626.—Jacob W. Goodwin and Moses C. Hawkins.—*Improved Method of Regulating Pumps by Wind-Wheels.*—Patented April 8, 1856.

When water is taken out from the trough N, the float U falls and the elevating rod P rises and brings the wheels H and J in contact, thereby setting the pump in operation.

Claim.—1st. The construction of a wind-wheel, with the sails A shaped like a funnel, and always presenting the open ends of those on one side of the wheel to the blast.

2d. We claim the construction of the float M, and the lever O, with the elevating-rod P, in combination with the wheel H, so constructed as to be raised and lowered by the rising and falling of the float M, in the manner described, or by any other construction substantially the same, and which will produce the same results.

No. 14,599.—Thomas Crane.—*Improvement in Rotary Pumps.*—Patented April 8, 1856.

When the periphery of the piston E works too loosely within the chamber A, it may be tightened by turning the shaft C, within its sleeve *k*, until the eccentric portion *e* of the shaft C throws outwards the piston a sufficient distance to bring its periphery into close contact with the periphery of the pump-chamber.

Claim.—Connecting the shaft C to the hub D in such a manner that, without opening the pump-case, the periphery of the annular piston E can at any moment be forced outward into close contact with the periphery of the pump-chamber, substantially in the manner herein set forth.

No. 15,059.—John Broughton.—*Improvement in Rotary Pumps.*—Patented June 10, 1856.

The distinguishing characteristic of this pump consists of its being composed of a rotary eccentric piston A, fitted within a barrel C, which derives an oscillating movement (the centre line of oscillation being at E,) from the rotary movement of the piston, while the piston by its rotation, combined with the oscillation of the barrel, is caused to move reciprocally towards and from each end *b b* of the barrel, and thereby without the aid of valves alternately to form a vacuum to draw water into either end of the barrel through a suitable inlet G B L, and force it out again through M B I.

The shaft B is hollow, and has a transverse partition *d*, at about the middle of the piston, which separates one portion which is to serve as an inlet from the suction pipe G to the barrel C, from the other portion which is to serve as an outlet from the barrel C, to the discharge-pipe I. The outlet portion of the shaft connects with an air-chamber N cast within the piston, said chamber connecting with the passage M.

Claim.—A rotary pump composed of a rotary eccentric piston A working within an oscillating barrel C, with any arrangement of inlet and outlet passages, as herein set forth.

No. 15,221.—Charles N. Clow.—*Improvement in Rotary Pumps.*—Patented July 1, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I am aware that corrugated or cogged pistons have been used, and I wish it distinctly understood that I do not claim such cams or pistons.

But I *claim* cams B B or pistons having smooth peripheries, made to revolve with their peripheries in contact, to form the abutment by gear-wheels D D on the same shafts as said cams, the pitch line of which gears corresponds in shape with the peripheries of the cams.

No. 15,274.—James A. Bazin.—*Improvement in Rotary Pumps.*—Patented July 8, 1856.

The two pistons *b c* of a rotary pump *a* are attached to independent shafts *d* and *e*. The shaft *d* is attached to a hollow sleeve *f f*, which revolves around a centre shaft *g*, to which the fly-wheel *h* is attached. The sleeve *f f* extends through the centre of the shaft *e* of the piston *b* and is fastened to a short crank, to which the toggle-arms *n o* are attached, by means of pivot *m*. The shaft *e* of piston *c* is secured to a sleeve *k*, which revolves around sleeve *f* but extends no further than the shaft *d*. The sleeve *k* is attached to a crank *l* placed behind the crank *i*, both cranks turning on a common centre *g*; to the end of crank *l* are attached toggle-arms *p* and *q*, figs. 1 and 4, by a joint *r*; the ends of each set of arms meet in pivot joints *s t* common to both sets. The pivots *s* and *t* have attached to them friction rolls *u* and *v*. By means of these arrangements and those illustrated in fig. 3, consisting of a circular groove

W W described from centre *r* and a circular groove X X described from centre *g* in the front plate of the pump, and a slot *z* in the plate *a*, in which the friction rolls *y* play, one piston is held stationary while the other is moving.

Claim.—I claim the means employed for moving the two pistons alternately, the same consisting of the toggle-arms attached to the cranks of the pistons, and operating in the circular grooves W X, in such a manner as to hold one crank and its piston stationary while the other crank and its piston are moving, as set forth.

No. 15,280.—Charles N. Clow.—*Improvement in Rotary Pumps.*—Patented July 8, 1856.

The cams A A revolve in the pump-chamber towards each other; the roller C is inserted in the space between the two cams or pistons, so that it makes a water-tight joint where it rests on them. As the cams rotate, this roller moves longitudinally in the case, but at all times lies over the space between the cams.

The inventor says: I am aware that the cams A A have been heretofore used, and therefore I do not claim them as new; but what I *claim* is roller C, or its equivalent, inserted in the manner and for the purpose described.

No. 15,211.—Remy Henry, assignor to James Smith.—*Improved Method of Operating Steam Valves of Steam Pumps.*—Patented June 24, 1856.

The steam valve I is moved by the pistons B and D coming alternately in contact with the sleeves F, the motion of the sleeves being communicated to the valve-rod J by means of lever L. The attachment of spring N and fork O effects the double purpose of giving the valve a sudden opening as soon as the lever L and the fork O have been moved past a direct line, by the piston striking the sleeve and holding the valve in its proper position until the return stroke is made.

The inventor says: I do not claim attaching the pistons of a steam cylinder and a pump to one rod, and operating the pump by the direct connexion; nor do I claim operating the valve of a steam cylinder by the piston.

But I *claim*, 1st. Giving motion to the steam valve I of a steam pump by the alternate action of the steam and pump pistons B and D.

2d. The combination of the sleeve F, the lever L, the fork O, and the spring N, to communicate the requisite movement to the steam valve.

No. 15,227.—Robert H. Fletcher.—*Improved Method of Operating Valves of Steam Pumps.*—Patented July 1, 1856.

When the piston has nearly finished its stroke, it shifts the inner cylinder E by means of stud *b* and lever *a*, closing the passages 6 2

and 4 8, and opening 1 5 and 3 7, thereby causing the water to enter and leave at opposite points, but keeping up a continuous flow, and so on at each backward and forward movement of the piston.

Claim.—Enclosing the piston head F within an inner cylinder E, which fits within the outside cylinder A of the pump, said inner cylinder being somewhat shorter than the space between the outside cylinder heads C, and so constructed as to alternately open and close the ports through which the water passes in and out of said pump, and operated by the piston, substantially in the manner herein described.

No. 16,154.—Henry M. Walker.—*Improvement in the Siphon à Clapet.*—Patented December 2, 1856.

When this siphon is to be used, the ring C is raised to the knob D, thus closing the valves at each end; the cap A is then secured in its place, and the siphon is ready for use, by inserting the short arm in water and opening the valves by lowering ring C.

Claim.—I am aware that siphons have been filled at the top, and that a valve or stop-cock has been used on the long arm

But I claim the application of a device for the simultaneous opening and closing of the orifices at each end of a siphon.

No. 16,178.—Erastus W. Ellsworth.—*Improved Arrangement of Valves, &c., in Siphon Rams.*—Patented December 9, 1856.

By connecting pipe H with a reservoir containing water, and turning key N J into the position indicated in fig. 1, the water will flow in the direction of the arrows, expelling the air from A. By then turning the key N J into the position of fig. 2, valve D closes, and the descent of the water in pipe A acts by suction to elevate the water from the source of supply at the foot of pipe B into B. The air which has previously been in pipe B is thereby transferred over into A. A repetition of the manipulation with the key will now expel said air, and both legs of the siphon are then filled. The valve C then commences beating against the opening L, and at each pulsation the momentum of the current in B acts to drive a stream up through the pipe H.

Claim.—The combination of either or both the valves of the ram with a governing key; said valves and key being constructed and arranged in the manner described, or in any similar manner, whereby any or all of the same objects are accomplished, either in a siphon ram or in a common hydraulic ram.

No. 14,623.—Anson Wolcott.—*Improved Method of Treating Surface Springs.*—Patented April 8, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I am aware that placing an open barrel or box

so as to surround a spring, is not new; but in that case it does not admit of covering the same with earth, nor remedy the evil of soft earth or miry margins to springs; nor do they prevent surface water with its impurities, nor insects from entering, nor prevent changes of temperature consequent to said open springs.

I am also aware that closed cisterns for retaining water introduced into them are not new; I therefore do not claim any of these methods; but I *claim* the use of an inverted vessel *a*, constructed with an edge susceptible of being forced into the clay pan through which the spring issues; said vessel being provided with a discharge pipe *b*, for the purpose of capping springs, so as to admit of surrounding and covering the inverted vessel with clay, substantially as described.

No. 14,617.—Earl Parker and William Reynolds.—*Automatic Thermo-Hydro-Olaio-Pneumatic Valve.*—Patented April 8, 1856.

The steam, when turned on, will pass through the perforations *d* into the stem, and through the side openings *h* into the annular space *e*. The heat will cause the oil and water in the inner bell B to be expanded and to press the piston *g* downwards till it closes the side openings *h*. But when the steam is cut off and allowed to condense, the oil and water in cooling gradually resume the original space, which admits of the piston being forced above the side openings *h* by the spring *x*, when air, freely entering the top apertures *c*, passes through the cock into the pipes.

Claim.—The employment, when combined substantially as specified, of oil and water, or their equivalents, for the automatic closing or moving of the valve by expansion of the said fluids in their liquid state.

And we further claim the arrangement of the inner and outer bells *e* B, tubes, perforations of passages *c d h*, and interior piston or valve *g*, for operation in the manner as set forth.

No. 15,030.—Henry R. Worthington.—*Improved Method of Attaching Stem to a Conical Valve.*—Patented June 3, 1856.

The conical plug A has no passage through it for the water, and when in its seat completely closes the opening through the gate D. The plug is elevated or depressed by the action of the screw *h*.

The inventor says: I disclaim the invention of a cone or plug, lifted by means of a screw in the direction of its axis.

But I *claim* the use of the hollow conical plug, with the apparatus for opening and closing the same, attached at the bottom of plug.

No. 15,192.—Franklin Peale.—*Improved Tubular Elastic Valve.*—Patented June 24, 1856.

The nature of this improvement is the employment of valves composed of flexible material, arranged so as to open in one direction by

the elastic quality of the material composing the valve, and to close again through the same cause.

Claim.—The method of adapting flexible valves to flexible tubes, and inserting them therein, in the manner as shown.

No. 15,960.—Robert P. Bradley.—*Improved Puppet Valve.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventor says: I do not confine myself to the spiral arrangement of the grooves *b b* up the sides of the valve.

But I *claim*, 1st. The construction of a puppet-valve B of the form of a cylinder, of the full size of or larger than the exterior of the face *h* of the valve, with its face at the bottom, and with grooves *b* in the sides, substantially as described.

2d. When the outlet *e* is at the side thereof, forming a passage round the valve, by making a groove around the interior of the chamber A^1, and a similar groove around the exterior of the valve B, to form a passage around the grooved cylindrical puppet valve B^1, to form a passage *f* of an area sufficient for the free escape of water at the outlet of the chamber A^1, substantially as described.

No. 14,627.—John D. Heaton.—*Improved Arrangement of Valves for Hydraulic Engines.*—Patented April 8, 1856.

When a head of water communicates with pipe J, the chamber A is filled, and the hydrostatic pressure forces the water through ports *b b* and pipe N into the cylinder L, causing the piston to move, and imparting a rotary motion to the spur wheels P and R. When the crank is near the dead point, the wrist S comes in contact with the head of the slot W, which moves the valve sufficiently to close the ports *b b*, and uncover the ports *a a*. The water now passes through G N into cylinder L, and the water first admitted into the cylinder passes out through O I into chamber B, and is discharged through pipe K.

Claim.—The construction, use, and application of the swinging or vibrating band valve devices T T *c c c c*, being on or attached to an axle or shaft *e e*, and operated by the slotted connexion rod I W and wrist pin S, as set forth.

I also claim in combination with the said valves the construction and arrangement of the water chests, or the chambers C C D D, the compartments F G E H, with the pipe I K, substantially as described.

No. 14,646.—J. A. Ayres.—*Improved Mechanism by which Cattle Raise Water for Themselves.*—Patented April 15, 1856.

When the animal passes upon the platform E, towards the trough D, the back end of the platform will be depressed, and the filled bucket

G will be raised up above the trough D, the cork *i* on the end of the lever *g* falling by its own gravity when above the water, and causing the opposite end of the lever *g* to cover the orifice of the tube *f*. When the lower end of the bucket just passes above the trough D, a pin *j* strikes against the lever *g*, and throws the end of the lever below the tube *f*, allowing the water to flow out.

Claim.—The combination of the bucket G, with faucet H attached, platform E, and wheel and axle *c* d^1; the above parts being connected by the ropes or chains *b c*, and arranged substantially as described for the purpose specified.

No. 14,525.—Andrew J. Sweeney.—*Water Metre.*—Patented March 25, 1856.

The piston-rod P has in one end a link F, to change the position of the weighted lever G, which plays in a slotted piece I, forming a rest for the lever at either end. The lever strikes in its fall on either end (as the case may be) another slot on the valve-rod K, and opens and closes the ports B and D, allowing the cylinders A and A^1 to fill and discharge alternately.

M is the discharge-pipe, and N the supply-pipe.

Claim.—The combination of two cylinders and two pistons with one head common to both, having the ports thereto attached as herein described, forming a cheap and effective metre, with but little liability to get out of order.

No. 14,921.—Nathan B. Marsh.—*Improved Water Metre.*—Patented May 20, 1856.

The rod *i* is by means of the bar *z* placed in rigid connexion with a valve-rod 2, having attached a pair of tappets 3, which, at the successive strokes of the piston, move the arm *y* alternately to and fro, and with it the valves.

In order that there may be no perceptible cessation of the flow of water, the valve motion is made almost instantaneous, by the retracting force of a spring 4, composed of India-rubber thong, attached at one end to the outside of the arm, and at the other end to a stirrup 5, capable of vibrating around a pivot placed eccentrically with that of the arm *y*, so that the thong being drawn out of the middle of the stroke, tends to throw the arm to whichever extremity of its sweep it is for the time being nearest. These valves and their perforated sockets are so arranged that they can at no part of their motion communicate with the supply and the discharge at the same time.

The inventor says: I am aware that elastic diaphragms have been used for various purposes; this, therefore, I do not claim.

But I *claim* the manner of pinching the diaphragm between the plates *f g*, so as to perfectly and at all times pack the joint between the chambers which it divides, viz: by means of the projecting flanges

on each, lapping past each other, and the nuts to hold them together as represented.

The double reversing valve movement, namely, the two solid cylindrical valves *r s* having their spindles connected by a rocking-beam *x*, and playing within tubes *t u*, communicating at their ends with the supply *l* and discharge *m* respectively, and with the respective compartments *a* and *b* of the measuring cylinder, by means of apertures in their sides.

No. 15,597.—Charles J. P. Ariail.—*Improved Method of Applying one Stream of Water to Assist in Raising Another.*—Patented August 26, 1856.

The body A is provided with two concentric annular channels B and C, in which the valves *e* and *c* attached to plate D are made to revolve. The plate D revolves on its centre-pin as the pressure of the water running from the reservoir through the siphon E acts upon the valve *e;* the valve *c*, being smaller than valve *e*, forces a body of water in the channel C into the pipe S and raises the water in said pipe.

Claim.—The arrangement of raising water of two concentric annular channels, to which are affixed self-acting, rotating valves; attaching to one channel a siphon, through the suction of which, and pressure of water following, the rotating valves are operated, constructed and arranged, substantially as described.

No. 16,235.—John Heller.—*Improved Portable Water Mill.*—Patented December 16, 1856.

The nature of this invention consists in the arrangement and combination of four overshot water wheels E, enclosed within a box A, so as to operate on the four sides of a bevel wheel on a vertical shaft F, for the purpose of maintaining said shaft in its proper perpendicular position.

Claim.—The "Portable Quadruple Water-Power," arranged and combined substantially as described.

No. 14,535.—John Haseltine.—*Water Wheel.*—Patented March 25, 1856.

A is a scroll which conducts the water to the wheel; the radial portion *f* is connected to the shaft D by the tangential partition C, which latter is parallel with the shaft. The hoop E surrounds the extremities of the inclined portion C^1 of the float.

Claim.—Making the outer portion *f* of the floats radial, the second portion C tangential, and the third and last portion C^1 to incline downward from the shaft D and from the tangential portion C, when the same or the several parts are constructed, combined, and arranged substantially as described, so that the water will act against the two first by propulsion, and upon the latter by its weight.

No. 15,175.—Wilbur M. Davis.—*Improved Water-Wheel.*—Patented June 24, 1856.

The water enters through the spout A, passes round between the scroll B and scroll-plate H, through the pitches G acting upon the floats F, and passes out at the bottom of the wheel.

Claim.—The combination of the scroll-plate H and water pitches G, to secure more beneficially the direct action of the water, in combination with the cone spreading the bottom of the wheel, with a curved float F, narrowed at the bottom, and set spirally upon the cone E, which, with the scroll-plate and water-pitches, secures the full, direct action and re-action force of the water upon the wheel.

No. 15,309.—John Tyler.—*Improved Water-Wheel.*—Patented July 8, 1856.

The object of giving the dish-shape to the head *e* of the wheel is to enable the water as it enters the wheel to exert an upward lifting action upon it; also, to cause the water to be kept in a compact mass, and to pass so rapidly and so cleanly through the wheel, that there can be no loss from the reaction of sluggish water between the buckets. The object of giving the scolloped shape to the rim *f* is to conduct the water in a solid body from the water-way A against the central portion of the convex surface of each bucket, and then, as soon as it has performed its propelling function, allowing it freely to fall out of the wheel, and not react upon the concave surfaces of the buckets.

Claim.—Giving the head *e* of the improved water-wheel an upward curvature from centre to circumference.

2d. The peculiar shape and position of the series of buckets within the wheel, viz: the convex surface of each bucket having the shape of the segment of a circle whose radius is one-third longer than the radius of the wheel, whilst the said buckets are so arranged that the convex surface of each bucket is tangential to an imaginary circle, whose centre is the centre of the wheel, and whose radius is one-third the length of the radius of the wheel.

3d. Connecting the lower edges of the buckets to each other by means of a scolloped ring *f*, of such a shape that the water will be conducted from the scroll-shaped water-way directly against the central portion of the convex surfaces of each bucket, and then pass freely downwards between the buckets.

No. 15,977.—George E. W. Herbert.—*Improved Water-Wheel.*—Patented October 28, 1856.

The water, being simultaneously admitted upon all sides of the wheel B, strikes upon the inclined faces *a* of the buckets. The flanges *l* prevent the water which has entered the wheel from being thrown by centrifugal force against the current entering through the scroll passages, and thus impeding it; and by checking the water near the

periphery of the wheel, where it exerts most force, increases materially the power of the wheel.

Claim.—The flanges *l*, constructed as described, in combination with the inclined position of the buckets *a*, substantially as specified and for the purposes set forth.

No. 14,882.—George W. Pittock, John B. Stott, and Galen Richmond.—*Improved Reacting Water-Wheel.*—Patented May 13, 1856.

The water, being admitted to the top of the upper wheel, in forcing its way down causes it to revolve. Its exit water, instead of passing off uselessly, is projected against the buckets of the lower wheel, giving effect to it also, both as a direct and reactive wheel.

Claim.—The combination bucket, formed by the union of two separate buckets, whose lines are arranged so as to form a hollow box, through which the water passes in operating the wheel. We claim the mechanical arrangement and application of the gearing to the wheels and shaft X, with the upper section of the cone of the upper wheel, in combination with the cap E which covers it.

No. 15,384.—A. Munroe.—*Improved Reacting Water-Wheel.*—Patented July 22, 1856.

The object of this invention is to introduce the water into the wheel in the proper direction, as represented in the illustration, the water being discharged from the centre of the wheel, so as to allow a free and unobstructed current to pass through the spiral A.

The inventor says: I do not claim the scroll A, nor the concave buckets *d*, when separately considered, for they have been previously used; but I *claim* the scroll A, having the guide or deflecting plates *a* attached to it, the wheel B provided with the concave buckets *d*, and the plates *e* attached to its arms *c;* the above parts being arranged and combined as shown, for the purpose specified.

No. 15,463.—John C. Shorey, assignor to Augustus J. Webster.—*Improved Method of operating Gates for Water-Wheels.*—Patented July 29, 1856.

A represents a horizontal water-wheel, mounted in the usual manner. The horizontal gates F and G are arranged above the water-wheel, and can be made to turn on their fulcra F by means of the pinion K and racks *h*. In fig. 1 the gates are represented as being open; in fig. 2 they are represented as being shut.

Claim.—Applying the two gates to the wheel and flume, in manner and so as to operate with respect to the discharging opening and the wheel-shaft, substantially as specified.

No. 16,027.—David M. Tyler.—*Improved Method of Starting and Stopping Water-Wheels.*—Patented November 4, 1856.

The operation of this water-wheel is as follows: The issues being closed, tooth *y* of arc *c* is made to engage the wheel *h*, and power is applied to wheel W in the direction of arrow. This turns the wheel *h* in the direction of arrow 2, and drawing rods *e*, as shown by arrow 3, slightly open the issues. The discharge of water which then takes place produces the rotation of the wheel in the direction of arrow 4, carrying disk D around until point *p* of dog *i* drops into notch *m*, the issue gradually increasing in size until this point is reached. The teeth of arc *c* are then disengaged from wheel *h*, and the water-wheel is in operation. Pressure upon rod R forces down the disk B, causing point *p* to be removed from notch *m*, when the pressure of the water on the buckets close the issues, and the dog point *p* is arrested by notch *n*.

Claim.—The combination of the frame upon the main shaft, and the spring dog *i* on the same, with the notched disk D, and the rods leading to the swinging buckets, or their equivalents, for effecting the opening of the issues and locking of the same, substantially as set forth.

Also, the beveled disk B, in combination with the studs of the dog, or their equivalents, arranged and operating substantially as set forth, for permitting the water in the wheel to close the issues.

No. 15,273.—H. B. Barber.—*Improved Method of Drawing Water from Wells.*—Patented July 8, 1856.

In raising the bucket I, it comes in contact with the lever O, (represented in detail in fig. 2,) and raises the same together with pawl R^1; and at the same time the pawl R is lowered, and arrests the gearing of the pulley G, holding the bucket elevated. The motion of the crank-shaft C is then reversed, and the pulley E, which runs loose on shaft C, coupling itself to pulley G, elevates the bucket K, and the bucket I is lowered. By unscrewing the set-screw *m*, so as not to project beyond the arms *n* of wheel G, and by arresting wheel E by means of hasp *d*, one bucket only may be used without any further alterations in the parts of the machinery.

Claim.—The use of the lever O, in combination with the two pawls R and R^1 and toothed pulley G, or their mechanical equivalent, constructed and arranged as above described, for the purpose of automatically arresting the pulleys when the buckets are at a given height, and keeping them suspended during their discharge.

I further claim combining the two pulleys E and G, mounted on one shaft, and driven by the same pinion, with the hasp *d* and thumb-screw *m*, for the purpose of connecting or disconnecting said pulleys, and thus working one or two buckets.

No. 15,970.—Plumer Chesley.—*Improved Current-Wheel.*—Patented October 28, 1856.

This invention relates to the peculiar construction of a wind and water wheel, arranged with a perpendicular shaft A, to which are

attached one or more sets of wheels, each set containing four arms, to which the fans, or floats B are attached. If the wheel is operated by wind and water combined, two sets are used upon the same shaft, one acting in the wind, and the other in the water.

A detailed description of the construction of this wheel would take up too much space to be given here.

Claim.—1st. The regulators, as described and arranged.

2d. I claim the entire arrangement for starting and stopping the wheel, as I have made known.

No. 16,110.—Stephen K. Baldwin.—*Improvements on the Fourneyron Turbine Wheel.*—Patented November 25, 1856.

The water takes its course through the orifices V, conducted by the water-guides J, and impinges against the buckets B at U, and thence passes downward in a reverse direction to the arrows, the momentum of the water causing it to press hard against the bucket until it reaches the Fourneyron turbine part, when it impinges against that with the momentum acquired in its descent, and the pressure of the head water following, and is discharged at the orifices at W.

The inventor says: I do not claim the water-guides J J, &c., or the circular gate N, or any particular method of applying the water to my wheel, as there are various methods in which it may be done.

But I *claim* the extending of the bucket B of the Fourneyron turbine water-wheel further inward towards the centre of the wheel, either on the radial lines, or on lines varying either side of the central point, and thence upward and outward, so as to receive the direct action of the propelling water against the extended bucket on the outside of the wheel, and above the Fourneyron turbine part, as described.

No. 14,793.—Joseph Bastion.—*Improved Construction of Guides or Chutes for Turbine Wheels.*—Patented May 6, 1856.

B represents a conical centre through which the wheel-shaft passes. The curved supporters C C (fig. 2 is an inverted view, with the chute closed) perform the double purpose of supporting the conical centre, and acting in conjunction with the movable part for closing the chute H. The flange *g* supports the movable or adjustable part of the chute H. Figure 1 represents the chute open. In order to adjust the same, the movable part must be revolved in the direction of the arrow.

Claim.—The stationary conical centre B, in combination with the adjustable parts D E F and supporters C C, for the purpose of graduating the quantity of water discharged, and giving the desired direction to the same.

No. 14,015.—Benjamin Fenn.—*Wind-Mill.*—Patented January 1, 1856.

To a vertical shaft A are secured the horizontal arms D in a rectangular position; the wing supporters E are secured to these arms in

a horizontal position, and between them the wings F G and I are hung on pivots H a little one side of the centre of said wings; when the force of the wind increases, the wings are turned into an oblique position; and as the lower side of the wing I rests against the governor M at each end of the wing, (figs. 1 and 3,) they move correspondingly; and as soon as the wing is out of range of the wind, the governor, acting as a counter-balance, causes the wing to turn back into its former position. The wing F and its duplicates are governed in high winds by the pendulums J. As the wing F is being brought into range with the wind, the force of the wind acting upon the wing O attached to the pendulum, it is moved back from *d* to *e*, which withdraws the rod L so that the wing raises from f^2 to *g* (fig. 3); and as soon as the wing has passed out of the range of the wind, the pendulum will fall back to *d*.

Claim.—What I claim as my invention, and desire to secure by letters patent, is, the horizontal movable wing with unequal sides, and hung upon eccentric pivots, in combination with the governors M, arranged in the manner and for the purpose set forth.

I claim, also, the method of governing and releasing the wings in high winds by means of the pendulum J and rod L, in combination with the wheel or counter-balance R, as herein described.

No. 15,714.—Ephraim Whitman.—*Improved Wind-Mill.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination and arrangement of the rotary wind-flume A, the series of turning blinds or gates M, and the wind-wheel G, the whole being applied and made to operate together substantially as described.

And in combination with the wind-flume A, the series of turning blinds or gates M and the wind-wheel G, the whole being applied and made to operate together substantially as described.

And in combination with the wind-flume A and its wheel G, the series of guide-plates L L L and the concentric tubular tapering case I, arranged substantially in manner as explained.

Also, arranging the transferring shaft F in the turning axis of the wind-flume A, and so as to pass through the lower journal C thereof, and thereby enable the wind-flume and driving-shaft H and its bevelled gear to revolve around such transferring shaft and the bevelled gear thereof, and transmit power through the shaft F under any position of the rotary-flume A.

No. 15,709.—John R. St. John.—*Improved Wind-Mill.*—Patented September 9, 1856.

The governor T can be raised or lowered by means of the rod *i* on vane H; and as the governor T is pressed backward by the force of the wind, the rudder-vane H moves vertically on the axis *m*, by which

the segment-pinion *f*, operating upon circular-rack *d*, carries forward the collar *n*, the rods B contracting the spiral-spring *e;* at the same time the levers *p* are operated by the rods B, and move the rods *q* for opening or shutting the sails of the wind-mill.

The inventor says: I do not claim, separately and simply by themselves, any of the parts, as they have all been used before.

But I *claim* the arrangement and combination of the parts as described, or their equivalents.

1st. The traverse table and tail-piece for carrying the reduced part of the main shaft, and for sustaining the main shaft horizontally on the screw-pivot G, with the arrangement thereon of the rudder-vane for its perpendicular movement.

2d. The main shaft with its hinder portion reduced, with the circular-cogged rack *d*, the collar *n n*, and the spiral spring *e e*, working therewith.

3d. The rudder-vane H, as performing the two offices of keeping the sails to the wind by moving the traverse tables horizontally; also as carrying the rod *i i* and the governor-vane or globe T, for giving a vertical movement.

No. 15,805.—Marcus Frisbee.—*Improved Wind-Mill.*—Patented September 30, 1856.

The spring F runs towards the shaft A, a little past the edge of the wing C, so that it hits a stop when brought into a line with the shaft by the wind ; it is held in this position by a moderate wind until the shaft moves round, when the wind presses on the other side of the wing, and the opposite wing takes its position. The stops are fastened to two flat rods R R by means of loops, allowing a motion up and down.

Claim.—The combination of the spring on the sails with the adjustable or shifting straps operated by the lever, in the manner and for the purposes set forth.

The combination of the spring on the sails with the adjustable or shifting straps operated by the lever G, in the manner and for the purposes set forth.

No. 16,257.—Solomon W. Ruggles, assignor to Silas Ruggles.—*Improvement in Wind-Mills.*—Patented December 16, 1856.

The vane F keeps the rod I in a proper relative position with the wind, and the buckets K are raised in consequence of the rods *f* passing over the rod I; and as the buckets K rise, they are filled by the wind, and the disk J is rotated thereby. The buckets fall by their own gravity as they pass off the rod I and get beyond the direct action of the wind.

Claim.—The disk J and buckets K, in combination with the wire or rod I, connected with the vane-bar E, and arranged as described for the purposes specified.

No. 14,808.—Albert G. Field.—*Improved Self-Regulating Wind-Mill.*—Patented May 6, 1856.

The wind being in the direction of the arrow, the proper weight I will keep the sails G at an angle of about 45° with the wind, a button *h* on the cord preventing the weight from turning said sails square with the wind. As the sails move around, they will preserve their position till the wind catches against the windward edge of the sails, which causes the sails and spindles F to be turned in a reverse position, as shown at G*, the sails, however, still forming an angle of 60° with the wind. At G** the edges of the sails will only be presented to the wind; as they are not acted upon by the weights I at this point, the buttons *h* being against the loops *d*, and as the sails reach the windward side of the wheel, the wind will again act upon them, so as to throw them into the position shown at G***.

Claim.—Hanging the sails G G^1 on arbors or spindles F, substantially as shown, and having the weights I attached to the cranks *b* of the arbors or spindles by cords *c*, having buttons *h* upon them, as herein described, for the purpose specified.

I further claim raising the weights I by means of the cords *f* attached to the weights I and shaft or pin J, arranged substantially as herein shown and described.

No. 14,918.—Morgan S. Johnson.—*Improved Method of Regulating Wind-Mills.*—Patented May 20, 1856.

The nature of this invention consists in providing an outside framework G with doors H, which are made to open and shut, by turning the shaft C, for the purpose of letting in or shutting out wind.

Claim.—The particular mechanical devices, as arranged for the purpose of housing the sails.

No. 14,997.—Jesse Battey.—*Improved Method of Regulating Wind-Mills.*—Patented June 3, 1856.

The wing *d* serves to counteract the opposite wing *s*, while the adjustable wing *e* counteracts the pressure of the wind against the shield B and frame.

The regulator D is connected with the vane C in such a manner that the extension of the balls brings the point N nearer the vane C, and *vice versa*.

The object of the pressure-regulator E is to operate instantaneously on the regulator D, in case of sudden gusts of wind, causing it to shut off a portion of the wind before the increased velocity of the main wheel would cause it to do so. Any sudden gust of wind throws back the wing *a*, raising the lever K by means of the cord F winding upon the shaft H.

In order to start the mill, the point Y is brought nearer the vane C by means of cord T and the double lever U, whereby the pinion V is

made to slide clear of the segment O. The mill is stopped in a similar way.

The inventor says: I do not claim the wind-wheel in itself considered, neither do I claim the regulator D separately; as similar ones have been used before.

But I *claim* the regulator E, either with a perpendicular or inclined wings or with the shaft H standing upright, and the wing turning horizontally, and its combination with the regulator D; also, the rotary vane C and its arrangement, and the connexion of the combined regulators E and D or either of them separately therewith, for the purpose of securing uniformity of speed. And lastly, I claim the entire arrangement of starting and stopping the mill, as herein specified, or any arrangement substantially the same.

No. 15,599.—William C. Chambers and Thomas S. Hargraves.—*Improved Wind-Wheel.*—Patented August 26, 1856.

Motion being given to the mill, it imparts a movement through the gears to the vertical shaft L, which propels the machinery. As the force of the wind increases or slackens, the mill will always be self-regulating; for the vane or rudder A^1 will always be in range with the wind, or nearly so, while the wind-wheel H will, in proportion to the resistance offered from the machinery it propels and the force of the wind, be carried away from or brought to the line of the rudder A^1. As the plate F is vibrated away from the line of the rudder, it will, by means of the segment O, cause the small pinion, which is secured to the pulley Q, to rotate; and as the weight cords are secured to this pulley in such a manner, by being wound around them, as to always draw, one weight will be elevated, and the other depressed. The purpose of the heavy weight M is to always bring the wind-wheel in a line with the rudder, while the small weight N serves to steady it in its action. The rudder-head E and plate F are free to rotate upon the ring of the plate D, as the direction of the wind may indicate.

Claim.—We claim attaching the plate E, which supports the wheel, to the rudder plate, in such a manner as to allow it a vibrating rotary motion, whereby the mill is rendered self-regulating, substantially as described.

2d. The combination and arrangement of the segment gear O, pinion P, drum Q, and weights M and N, (or any equivalent mechanism,) for retaining and holding the wind-wheel always in proper position, substantially as set forth.

No. 14,572.—Francis Peabody.—*Improved Wind-Wheels.*—Patented April 1, 1856.

Upon each side of the hubs are grooves $i\ i^2$, to which are adapted guide rings $k\ k^2$. To the pins $l\ l^2$ projecting from opposite sides of these rings are pivoted the rods N and O, the object of which is to prevent the rings from being revolved by the wheel. To the pins l are attached the

chains Q, which are secured to the windlass R, in order to hold the wheel more steadily in violent gales.

To the rings k^2 are secured the chains Q^2, with their weights S^1. This weight is sufficient to counterbalance the force of the wind upon the wheel, so long as it is not necessary to retard its motion by bringing it nearer to the regulating disk. As the wind increases, the wheel B^2 is carried back towards its disk, and the weight S^1 is raised, until it comes in contact with the lowest weight *p*, which it lifts from the step T. The weights *p* are thus successively raised, until the accumulated weight counterbalances the force of the wind.

Claim.—The method herein described of hanging and arranging the two wheels B B^2, and adapting them to the opposite ends of a permanent building A; the wheels B B^2, with their regulating disks C C^2, being secured to the revolving turn-tables D and D^2, at a distance from the points *f f* around which they revolve, equal or nearly so to one-half the width of the building, whereby wheels of great diameter may be employed in connexion with a permanent building of any required dimensions, as set forth.

2d. The weights S and *p p*, with the chains Q^2, or their equivalents, in combination with the disks C^2, for the purpose of regulating the motion of the wheel to the varying force of the wind, as set forth.

No. 14,459.—A. Lempche.—*Improved Self-Regulating Wind-Wheel.*—Patented March 18, 1856.

If the speed of the wings G increases in consequence of an increased velocity of the wind, the weights *e* will be thrown outward by centrifugal force, and the hooked ends of the lever J will turn the wings more obliquely to the wind, the tension of the spring I being overcome.

Claim.—The spiral spring I, or its equivalent, in combination with the weighted levers J, arranged substantially as shown, for the purpose specified.

No. 15,193.—Francis Peabody.—*Self-Regulating Wind-Wheel.*—Patented June 24, 1856.

Immediately behind the vanes A of the wheel are a set of secondary blades B (shown in fig. 3). The hubs C and D slide upon their shaft G, a pin a^3 from the hub D of the wind-wheel entering the curved groove a^2, and a pin *c* from the hub C entering the straight groove c^2 of the shaft. When the force of the wind increases, the hubs D and C are both carried back against the action of the spring F; the wind-wheel, however, is caused to make a partial revolution with respect to the shaft as its hub recedes, and thus the blades B are brought opposite to the openings between the fans of the wind-wheel, and these openings are more or less closed thereby.

Claim.—Regulating the velocity of the wind-wheel by means of the secondary blades B.

No. 14,099.—Frank G. Johnson.—*Improved Method of Regulating the Speed of Wind-Mills.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claims and the engravings.

The inventor says: I do not claim as my invention the general principle of regulating wind-mills by the use of weights or governors, revolving with or by means of the wind-wheel, and controlling the sails thereof through the intervention of levers and rods.

But what I do *claim* as my invention, and desire to secure by letters patent, is—

1st. The method substantially as herein set forth of regulating the velocity of the wind-mill and controlling the position of its fans by the use of the weights D D D with the springs E E E, adjusted to slide from and towards the centre of the wheel upon the spokes B B B, and connected to the fans A A A by means of the rods G G G, or their equivalents.

2d. I claim the combination together of the brake-wheel I and the arms Z Z Z, for the purpose of setting the fans edgewise to the wind whenever desired, said arms and brake-wheel being formed and adjusted substantially in the manner herein set forth.

No. 14,143.—Francis Peabody.—*Improved Method of Regulating the Velocity of Wind-Wheels.*—Patented January 22, 1856.

In order to complete the full circle of the disk in rear of the wheel A, (to oppose the full circle of the wheel,) the inventor hinges to the roof and sides of the building the wind-gates F and G. When the wind is light, the segments can be thrown back; when the wind is very irregular, the wheel A is moved longitudinally upon its shaft H nearer towards the wind-gates by means of hand-wheel *k*, screw-rod *i*, and rods *c c*, sliding in grooves of said shaft H, as will be understood from the engravings.

Claim.—1st. The wind-gates herein described, for the purpose specified.

2d. The method herein described of controlling the wheel by means of the rod *c c* and screw *i*, arranged and operating in the manner substantially as herein set forth.

XII.—LEVER, SCREW, ETC.

No. 15,142.—David McComb.—*Improvement in Non-Elastic Bands for Bales of Cotton and other Fibrous Materials.*—Patented June 17, 1856.

Figure 3 exhibits the under side of the slide; 1 and 2, in figure 2, exhibit the other side of said slide, which is so constructed that 1 serves as a guard to prevent the slide from dropping down too far, when applied in baling. Figure 4 exhibits a sectional view of the two complete.

Claim.—The combination of the link or slide with the hooked ends 5 and 6 of hoops, for the purpose of securing them from opening with the expansive force of the bale A.

I also claim the peculiar formation of the link, (as exhibited in figures 2 and 3,) which forms a secure means of keeping the hooked ends of the hoop together, and has a guard 1 which keeps it to its place, is easy of application in putting on, and may be removed at pleasure without mutilation.

No. 14,213.—Abner Whiteley.—*Improvement in Belt-Fastenings.*—Patented February 5, 1856.

The hooks B attached to the end A of the belt being passed through any set of holes in the end D of the belt, the belt is fastened ready to go on the pulleys. The end D overlaps the heads C of the hooks. The object of this is to secure the passage of the belt between side-guides, and avoid difficulty in catching against said guides, as would be caused by a buckle, and to permit the belt to be taken up and let out without cutting off the end and splicing again to let it out.

Claim.—The hook B, made as described and for the purposes set forth.

No. 14,389.—John H. Cheever.—*Improvement in the Manufacture of India-rubber Belting or Banding.*—Patented March 11, 1856.

The nature of this invention will be understood from the claims.

The inventor says: I do not claim the modes of preparing the rubber, or of compounding or vulcanizing the fabric, nor the machinery, as these are all well known to the manufacturers of rubber goods; nor do I claim the compounding of fibres of cotton or flax with India-rubber, as this has been done for the purpose of packing steam joints and for other similar purposes, but it has never been done in the manner described in the foregoing specification, nor has it ever before been used to constitute the fabric known in commerce as belting or banding; nor do I desire to claim the new process of making fibrous rubber goods in such forms that the fibres are arranged crossing each

other, in the manner above described, for the purpose of enabling the fabric to resist tension in all directions, and giving it flexibility without elasticity, as this new process and fabric I intend to make the subject of a separate application for letters patent on my part. But I do *claim* the improvement in the manufacture of rubber belting or banding, which consists in compounding fibres of cotton or flax with India-rubber, substantially in the manner and by the processes above described.

No. 14,175.—George D. Young.—*Improvement in Belt or Band Fastenings.*—Patented January 29, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—A clasp for uniting the ends *a a* of a belt or band, consisting of the bottom plate *b*, with its vertical studs *c c*, and the turning button *e*, or its equivalent, all operating together to rigidly gripe the band or belt, as described.

No. 15,795.—Augustus Simpson, assignor to Samuel H. F. Bingham.—*Improved Belt-Punch.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I am aware that punches and dies for various purposes have been used, wherein the one enters the other; but mine differs from all those heretofore used, in causing the cut to open as the cutter passes through, as shown in fig. 2, making an entirely different principle of cutting from those; which is the principle of action that I claim; or, in other words—

I *claim* the combination and arrangement of the tit D and the cutter A, when constructed and operating as described; whereby the conical form is given to the article punched, and the cutting facilitated and performed with the edge of the cutter free, as set forth and described.

No. 16,222.—Mark Allcut.—*Improvement in Adjustable Cant-Hook for Moving Logs, &c.*—Patented December 16, 1856.

The arrangement of the adjustable hook B, which is held in its place by means of pawl C, affords the means of applying this cant-hook to logs, stones, etc., of different sizes within the limits of its capability.

Claim.—The arrangement and combination of the lever with its pawl and slot, and the hook with its ratch notches, substantially as described, and composing an improved cant-hook, as specified.

No. 16,283.—William Maher.—*Improvement in Blacksmith's Crane.*—Patented December 23, 1856.

By turning the bar E, the work will be raised or lowered according to the direction in which said bar is turned, because the bar E turns on

the screw C, and the work, in consequence of being attached to the chain *g*, may be raised or lowered by windlass D; and as the end of the work is attached to chain *h*, the work may be readily handled in any direction.

Claim.—The horizontal bar E hung upon the screw C, and used in connexion with the windlass D, the above parts being arranged as shown, for the purpose specified.

No. 14,927.—E. Price.—*Improved Elevator for Cotton, Sugar-Cane, &c.*—Patented May 20, 1856.

The cotton is raked from the table 11 on to the carrier and elevated, the carrier being set in motion by applying power to the pulley 13.

The carrier is composed of the cords 10 10 and slats 9 9 9, as represented.

Claim.—The arrangement of the table 11 with the carrier apparatus, as represented in the accompanying drawings.

No. 14,282.—Marcus M. Cass and Lawson R. Bigelow.—*Improved Grapple for Raising Stone.*—Patented February 19, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—The combination of the levers, braces, and wedge, substantially as herein described, for the purpose of making a grapple for raising stone, or other heavy bodies, when the power to raise such body is applied to the wedge, and through it to the levers, to cause their jaws to tightly grasp and hold the body to be raised, as set forth.

No. 14,671.—Geo. Martz.—*Improvement in Apparatus for Hoisting Coal.*—Patented April 15, 1856.

The hoisting-carriage P and its load rest entirely upon its inner wheels *e e* and e^1 e^1, until, in ascending, the outer sets of wheels *f f* and f^1 f^1 are brought upon the wider track of rails E E. The forward end of the coal car rests entirely upon the inner pair of wheels e^1 e^1; and consequently, when the said wheels, in ascending, reach the chute G, they will follow the slope track down said chute, whilst the after end of said car will rest upon the outer wheels *f f*, which will throw the coal car into a position sufficiently inclined to cause its contents to be discharged into chute G.

The car is made to self-discharge its load by means of latch V and projection *q*.

As soon as the hoisting-carriage is relieved from the elevating power, it will run backwards all the way to the bottom of the slope-track D D, and will there discharge the coal car out on to the mine track C C, and put itself in proper trim for receiving another loaded coal car.

Claim.—Supporting the hoisting-carriage upon outer and inner sets of wheels, arranged in such a manner, in relation to the double sets

of railway tracks and the discharging-chute, that the coal car in said hoisting-carriage is made to self-discharge its load of coal into said chute.

I also claim so proportioning and arranging the respective parts of the hoisting-carriage and the coal car that, as soon as the elevating power is detached from said carriage, it will, by the force of gravity, run back to the bottom of the slope-track and re-station itself in the proper position for discharging its empty coal car and receiving a loaded car.

No. 14,666.—Geo. W. La Baw.—*Improvement in Hoisting-Drums.* Patented April 15, 1856.

The outside ends of the coilers J are arranged with a spring *l*, which at one end has a pin inserted in it. In the shaft M there is a slot through which the spring *l* passes, which is so made that its pressure forces it against the head of the coiler, which has a hole for the pin. If the pin is withdrawn, the shaft will turn independent of the coiler, whereby any amount of rope may be wound around the shaft inside the coilers.

Claim.—Constructing the coilers hollow, and with a slot *k* in them for the passage of the rope, together with the spring *l*, or equivalent, for the purpose of holding and protecting the surplus rope.

No. 16,233.—Harvy Gray. *mprovement in Lifting-Jack.*—Patented December 16, 1856.

By lifting one of the pawls *i*, the weight raised by this jack, and resting on roller G, can easily be moved in a horizontal direction.

The inventor says: I do not claim the screw, yoke, rollers, pawl, or ratchet, separately considered; for I am aware they are in use for various uses.

But I *claim* the employment of the screw E, yoke F, roller G, pawls *i*, ratchets *k*, in combination, substantially and for the purpose as set forth.

No. 14,170.—Henry F. Shaw.—*Improvement in Screw-Jacks.*—Patented January 29, 1856.

By revolving the body B of the jack, by means of a lever passed through the hole H, the plates E E, with their screw-shafts C C, can be made to recede from or approach each other, according to the position of the pawls *g*.

Claim.—The within described screw-jack, consisting essentially of the screw C, plates E, and double-pawls *g*, operating in the manner substantially as herein set forth.

No. 14,261.—William D. Titus.—*Improvement in Oil Box for Axles with Conical Journals.*—Patented February 12, 1856.

The chambers *d* being filled with oil, the oil will ooze out of the openings *x*, and by the rotation of the hub C will be gradually worked

upwards along and around the cones till the whole surface of the fixed conical bearing has been lubricated. The surplus of oil will escape and fall back through the sluices *s* into the oil chamber *d*.

Claim.—Constructing the cone or cones A, made close, with an internal oil or grease chamber *d*, round a cylinder or tube *c*, forming the centre part longitudinally of the cone, and providing the said cone or its periphery at opposite ends and on reverse sides with sluices or openings *x* and *s*, essentially as and for the purposes specified.

No. 15,145.—JOHN T. NOYE.—*Improvement in Clutch for Flour-Packer.*—Patented June 17, 1856.

A pin *f* projects from the packing-shaft T, and fills the slots S of cylinder W, so that the driving-shaft by means of this pin will carry the packing-shaft along with it, until the packer-shaft rises so that the pin may turn in the chamber K. To prevent the pins from striking the corners formed by the slots and cylindrical chamber, the triangular self-adjusting guard O is used: in its natural position, one arm extends across the slot; and as the packing-shaft rises, the pin *f* catches the arm x^1 and turns it round so that this arm stands nearly vertical, and the upper end of it reaches a little above the base of K, so that the pins *f* are thrown to the upper part of K before they can revolve in it; after the pin passes over the top of this arm, the arm falls to its natural position. After being thrown up to this position, the packing-shaft is kept here at pleasure by the rod L and its attachments in the usual manner.

Claim.—The clutch formed by the hollow shaft W, with slots S, and chamber K, in connexion with the round shaft T, with driving pins *f*, and balance or slide guards O, to drive the pins up into the chamber, in the manner and for the purpose herein set forth.

No. 14,065.—WILLIAM C. PANCOST.—*Improvement in Cheese Presses.*—Patented January 8, 1856.

The spiral or screw wheel A acts upon a groove in the circumference of the wheel E, which can slide on its stationary shaft, said shaft being secured in the body of the follower D. The wheel A is turned by means of the lever C, and the spiral threads of the smallest diameter act upon the wheel E, and by it the follower is pressed downward.

Claim.—The spiral grooved wheel A, in combination with the self-adjusting wheel E, as described above, for the purpose set forth.

No. 14,098.—CALEB S. HUNT.—*Improvement in Cotton Presses.*—Patented January 15, 1856.

a represents part of the frame work of the press. Clasp *f*, with its dog *g* fitting over stud *h*, connects the plate *e*, fixed to the nut *d*, to the collar *i*. By turning nut *k*, by means of lever *m*, the nuts *k* and *d* will turn as though formed in one piece, and the nut *d* will travel upon the

coarse main-screw *c*, which supports the platen, (not shown in the engraving,) and thereby rapidly advance the latter. When the material is already considerably compressed, and a slow movement required, the spring pawl *o* attached to the plate *e* engages with a notch cut in the thread of main screw *c*, and thereby holds the nut *d* stationary and prevents it from turning on the screw *c*, and the platen from descending as soon as the nut *d* is disconnected from the collar *i*. This disconnexion is effected by turning up clasp *f*. The nut *k* will then travel upon the thread upon the outside of nut *d*, which thread has but little pitch. Thus the screw *c* and platen will be elevated with a slow and powerful movement.

The inventor says: I *claim* the peculiar arrangement of the respective parts of my improved press, by which I am enabled, with a single lever, to impart either a weak and rapid movement or a slow and powerful movement to the platen of said press, or to any one of similar construction, viz: A non-revolving male screw attached to the platen is embraced by two or more matched and movable concentric screw nuts, whose uniting grooves and threads have a less degree of inclination than the threads upon the said male screw, and which are arranged in such a manner in relation to said male screw and the operating lever as to produce at will the desired movements of the platen, substantially as herein set forth.

No. 15,936.—William F. Provost and Charles J. Provost.—*Improvement in Cotton Presses.*—Patented October 21, 1856.

The cotton to be pressed being placed in the upper part N of the box of the press, the power is applied to the lever R, which is firmly secured to the frame B; said frame is thus turned on its pivots, and the bevel wheel F runs around the circumference of the stationary bevel wheel D, and turns, at the same time, the screw E; the nuts H approach by this movement towards the centre, straighten the lever arms I and M, and thus press down the follower K. When the material is sufficiently pressed, the side doors *g* are opened and the bale is removed. The frame B is now turned in a reversed direction, the nuts H move on the screws from the centre outwards and raise the follower. When the follower K has arrived at the top of the box, as represented in fig. 2, then the outer sides of the nuts H just touch the inner side of the frame B; and as the frame B, and with it the screw E, is turned after this contact, then the friction between the studs H and the side pieces of the frame B causes the studs to turn with the screw. The levers M slide out of their recesses, which are open at one side, and the nuts H and arms I and follower K assume the position marked in red in fig. 2, which uncovers the box N, and thus permits the material to be fed in in an easy manner

Claim.—The so uniting of the follower nuts and levers, as that, when the follower shall arrive at its highest point of elevation, it shall automatically swing out of the way of the filling box, to facilitate the placing of the cotton or other material therein, as set forth.

No. 14,493.—George H Corliss and Elisha Harris.—*Improvement in Presses for Punching.*—Patented March 25, 1856.

The plunger D is firmly attached to the yoke E, which works in a guide *e*. F is an oscillating box which receives the eccentric C. This box works at its lower end on a pivot *a*. The plunger yoke is of such a width as to admit of the oscillating movement of the box produced by the revolution of the eccentric.

We do not claim of itself an oscillating connexion between the eccentric and the plunger or follower, for the reason that an oscillating connexion, in the form of a common pitman, has been employed; but we *claim* the oscillating box F, applied and operating within a yoke E, in the manner substantially as herein set forth.

No. 14,031.—Joseph Peevy.—*Improvement in Hay and Cotton Presses.*—Patented January 1, 1856.

The beam B, sliding with its ends in the slots *a*, is lifted by a cord *e*, and at the upper portion of the slot *a* is drawn upon the guides or supports *i* against the side of the box A. The follower I is swung to the beam by connexions *m m*, so as to fall into a vertical position as the beam rises, and in this condition is drawn close against the side of the box during the filling thereof, as shown by the red lines.

The inventor says: I make no claim to the mode of operating the pressing arrangement, nor do I claim broadly the result due to my construction, as other devices have been employed to effect the purpose; but I *claim* as new, and of my invention, the combination of the laterally moving beam B with the swinging follower I, arranged and operating as and for the purpose specified.

No. 14,663.—Simon Ingersoll.—*Improvement in Hay and Cotton Presses.*—Patented April 15, 1856.

A represents the press-box, and C a follower, which is attached to a bar D, the ends of which pass through slots in the sides of the box.

Claim.—Operating the follower C by means of the levers H H, attached to swinging frames G G, and connected with the clamps I I, or their equivalents for lifting the follower-bars F F; the retaining clamps P, or their equivalents, being employed for sustaining or holding the follower when the bars F are released from the clamps I, substantially as shown.

No. 14,009.—Nathan Chapman.—*Improved Chain for Power-Press.*—Patented January 1, 1856.

The nature of this invention consists in so making a chain to be used on power-presses, that the line of the links shall recede from a straight line, and at the same time the links diminish in length from their point of attachment to the wheel on which they are wound to the follower which they are intended to raise, for the purpose of elevating

said follower in a perpendicular line, and avoiding the side friction occasioned by the use of cone-pulleys used heretofore. A represents the pulley to which the links a^1 of the chain B are fastened; the front of the pulley is provided with projections *a b c d*, upon which projecting surfaces the chain is wound without the links interfering with each other.

Claim.—Having thus described my invention, what I claim as new, and desire to secure by letters patent, is—

The so making of a chain for power-presses, that it shall recede gradually from a straight line, and the links diminish in length as they extend from the wheel on which they are to be wound to the follower, which said chain is designed to work substantially as herein described.

No. 14,733.—Nathan M. Phillips.—*Electro-Magnetic Grain Scale.*—Patented April 22, 1856.

The electric current passes from the positive pole of the battery to L, thence around the magnet, and through the connecting wire to the scale-valve R. When the requisite weight of grain is received in the hopper B, the beam A rises, forming a connexion at the platina point O and spring N with the negative pole M of the battery, completing the electric circuit. The connexion and circuit being formed, causes the magnet G to attract the armature H, moving the lever I, closing the valve P, and opening the valve F discharging the grain. The valve F is closed and the valve P opened by the operator, and the operation repeated as before.

Claim.—The application of an electro-magnet to open and close the valves of a scale for weighing grain, by making a connexion between the positive and negative poles of a galvanic battery by means of the tilting or raising of the beam, as herein described, and for the purposes set forth, or any analogous arrangement substantially the same.

No. 14,119.—Francis M. Strong and Thomas Ross.—*Improvement in Platform Scales.*—Patented January 15, 1856.

B B are the platform timbers; A is part of the frame-work. The nature and object of the improvement will be understood from the claim and engraving.

The inventors say: We do not claim operating the beam by means of bent levers connected with the steel-yard rod through an *intermediate* lever.

But we *claim*, 1st, the use of corresponding concavities and balls, in combination with the proximate face of the intermediate bearing pieces *h* and the shoe *g*, substantially as described, and for the purpose specified.

2d. The adjustable bearings *i*, in combination with the pivots *c*, substantially as described and for the purpose specified.

3d. The combination of the projections on the bearings *i* with the notches in the pivots *c*, constructed as described, for the purpose specified.

No. 16,286.—Lea Pusey.—*Arrangement of Railroad Platform-Scales.*—Patented December 23, 1856.

a a^1 represent the rails resting on the platform A of the scales, and *b* b^1 the rails of the main track; the cars can be passed either over the main track, so as to entirely clear the platform, or can be brought upon the platform rails *a* a^1, for the purpose of weighing, when they are disconnected from the main track rails *b* b^1 by means of an ordinary switch.

The inventor says: I do not claim a railroad scale, in combination with either a permanent or subsidiary track or siding, so that a locomotive or cars may be passed upon the said scale; nor simply approximating two tracks of a railroad, so that a locomotive or cars may be switched from one to the other, irrespective of the combination and arrangement of the same with the platform of the scale, as described, so as to avoid both the crossing of the track and the consequent use of a frog, or its substitute; nor do I claim supporting part of a railroad track upon posts or supports of any kind, arranged so as to pass up through roomy holes, made in the platform of a scale, so as to admit a locomotive or cars to pass over the same, without bearing upon the scale, irrespective of the peculiar arrangement and combination of the same with the scale, as described; whereby the said scale is adapted for receiving, weighing, and discharging the said railroad cars, without crossing the track, or using a frog or its substitute.

But I *claim* the arrangement of the platform of a railroad scale, either in the main or a subsidiary track of a railroad, substantially as described and set forth; so that when the said platform is not in use for weighing as a railroad scale, the locomotive and train may pass directly over the same, without bearing upon the said platform or scale; and also so that the cars may be passed on and off the said scale in the course of weighing, without crossing the track, and therefore without using a frog or its substitute, as described; whereby all the advantages heretofore derived from a siding constructed for preserving the scale from the injurious effects of the locomotives and trains passing rapidly over it are equally attained, and the room and expense required for the construction and use of the said siding entirely avoided.

No. 14,198.—S. S. Mills and M. Bissell.—*Improvement in Weighing-Scales.*—Patented February 5, 1856.

The weights C C D are hung with loops or eyes to the beam arms, so that they cannot be taken from them, mislaid, &c. When not used, they can be placed at the inner ends of the arms, in line with the fulcrum, where, of course, they will not affect the equilibrium.

Claim.—Constructing the scale beam A with arms *a* a^1 a^2, two or more, and otherwise arranged, as shown, so that either of the weights or the arms may, when not in use, be placed in line with the fulcrum of the beam, substantially as described for the purposes specified.

No. 14,361.—JAMES KELLY.—*Improvement in Weighing-Scales.*—Patented March 4, 1856.

When the indexes H M P are at the zero marks, the frame B will be perfectly balanced on the arms *a a*. The article to be weighed is placed upon the dish R, and the screw-rod J is turned by hand until the weight L is brought out sufficiently far from the fulcrum of the beam to counterbalance the article in the dish. The index M will show the weight in pounds, and the index P will show the fractional parts of a pound. If the article to be weighed is to be placed in a vessel, it (the vessel) is placed upon dish R, and counterbalanced by turning-rod R, which will cause the weight and nut F G to be moved nearer the fulcrum of the beam. The dish R is not represented in fig. 1.

The inventor says: I am aware that scales have been provided with a sliding tare weight G on one end of the beam, and a sliding gross weight L at the other, with the latter end or portion made adjustable by sliding devices that shortened or lengthened leverage. Also, that a fixed leverage in beam-scales is old, and that the mere indication of the weight by screw adjustment is not new; none of such, therefore, do I claim.

But what I do *claim* is the arrangement, substantially as herein shown and described, of the two screws (E and J) with, at opposite ends and forming part, of the double beam (B D), in combination with the nuts F K and weight (G L); all constructed and operating together essentially as set forth, for the separate and simultaneous adjustment of the tare and gross weights from fixed points or distances at opposite ends of the beam, in manner and for the purposes described.

No. 14,702.—R. F. WOLCOTT.—*Improvement in Weighing-Scales.*—Patented April 15, 1856.

The weighing-poise is composed of the saddle *i* and the hanging weight *f*, the screw cavity in said saddle resting upon the regulating screw *d*, the legs of said saddle resting upon the side-bars *b b* of the beam.

The inventor says: I do not claim the principle of operating a scale-poise by means of a screw.

But I *claim* the arrangement of the compound weighing-poise with the screw *d*, and with the sides of the scale-beam, in such a manner that the said poise may be either lifted from place to place upon the beam, or be moved gradually thereupon by turning the said screw *d*.

No. 16,302.—ELNATHAN SAMPSON, assignor to the "VERGENNES SCALE MANUFACTURING COMPANY."—*Improvement in Weighing-Scales.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The peculiar arrangement and operation of the respective parts of my improved compound weighing-poise, viz: combining the

outer portion *b* of said poise with the main portion *a* thereof in such manner that the act of rotating the outer portion of the poise will move it longitudinally upon the main portion thereof by a graduated movement, and at the same time indicate the different leverage action thereby produced upon the scale-beam by means of a toothed horizontal index on the main portion of the poise, and a spiral groove and a numbered spiral scale on the periphery of the outer portion of the poise, whilst the entire poise can be moved longitudinally upon a rod, situated immediately above the scale-beam, and the leverage exerted by said poise, when its respective parts are compactly united, be indicated by a vertical index descending from the main portion of said poise, immediately in front of the numbered scale of the scale-beam, all substantially as set forth.

No. 14,382.—William Yost.—*Improvement in Weighing-Scale Beams.*—Patented March 4, 1856.

The manner of operating these scale-beams is as follows: In loading a car, the car is first placed on the platform of the scales, and the whole is balanced by adding weights to the pendant hook D. The graduated sliding index is then moved outward from the clevis A towards the point of the beam. The load is then added to the car and weighed as in other scales, which gives the net weight of the addition

Claim.—The index marked from the centre, both right and left, together with the P and its additions and weights for grain measure.

No. 14,159.—Jonas Hinkley.—*Improvement in Universal Joint for Connecting Shafts, &c.*—Patented January 29, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—Connecting shafts, when placed angularly with each other, by means of the universal joints, constructed as shown and described, by which a rotary motion may be communicated from one shaft to the other.

No. 14,210.—Otis Tufts.—*Improvement in Making Wrought-Iron Shafts.*—Patented February 5, 1856.

The pieces *b* are first fitted together with longitudinal tongues and grooves *c* and lateral keys *d*, and then they are bound with large wrought-iron collars *f*, which are to be fitted on hot and shrunk by cooling.

Claim.—Constructing large wrought-iron shafts, with pieces separately wrought and fastened together, substantially as described.

No. 14,939.—James W. Martin, assignor to Lewis Rotherwell and James W. Martin.—*Improved Weighing Cart.*—Patented May 20, 1856.

When the body A is loaded, the bar M is withdrawn from the loops S; and by turning the crank-shaft K, the bars I I are moved, so that the notches *n* will be withdrawn from the heads *l* of the taper-pins *k*, and the enlarged parts of the slots *o* will be brought in a line with the heads *l* of the two opposite pins; at the same time the bar J will be thrown underneath the back piece A^1 of the shafts L, the bar J preventing the body A from tilting. By drawing downward the end of the lever H, the levers E E will throw the body A upward, free from the axle B; and the body A and the load it contains may then be weighed by adjusting the weight on the scale-beam G.

The inventor says: I do not claim broadly the levers and scale-beam, irrespective of their arrangement and adaptation to the cart; but I *claim* the levers E E F H, connected with the scale-beam G, in combination with the bars I I and J, arranged and applied to the cart, as shown.

No. 14,687.—William H. Bramble.—*Improvement in Grain-Weighing Machines.*—Patented April 15, 1856.—Antedated April 8, 1856.

When a sufficient quantity of grain has entered the receptacle C to vibrate the scale-beam *i*, the lever J and rod *g* will operate upon click *k* so as to allow the gate *m* to close itself by gravity; but as soon as the gate descends, the weight *y* brings the scale-beam back to its horizontal position. As the click *k* descends, it catches a tooth on the rear wheel e^1, thereby arresting the descent of the gate L, which causes the grain to sift slowly into C. The second upward movement of the scale-beam causes the gate L to descend and stop the flow of grain. The gate L, in descending, strikes against and depresses the lever E, thereby detaching the pin *u*, which permits the vessel C to vibrate on its axis until it is arrested by one of its projecting pins S. This latter movement causes also the elevation of both gates by means of the cams N N, and the opening of the door at the bottom of the filled compartment. As soon as the scale-beam is relieved from the weight of the grain just weighed, it will reset itself for again performing its proper functions. The movements of the weighing vessel C may be communicated to the hands of a registering dial plate E^1 in any well known manner.

Claim.—1st. The double-chambered oscillating vessel C, when combined with and forming a part of an automatic weighing apparatus.

I also claim dividing the vessel C into two compartments by means of a longitudinal flexible partition *a*, when the said vessel is arranged with and forms a part of a weighing apparatus.

I also claim combining gates *m* and L, of different sizes, with the conducting chute *w*, and with an apparatus that can be operated by the vibration of the scale-beam *i*.

I also claim the combination of the double gates with each other,

and with the ratchet-wheels *e* and e^1, the retaining click *k*, and the detaching movements.

I also claim detaching the click which holds the gate or gates in an open position through the medium of a vertical tilting lever J, combined with the scale-beam *i*.

I also claim the arrangement of the auxiliary weighing-poise Y and the movable table *f*, when the said table is combined with and operated by the gate *m*.

XIII.—GRINDING MILLS, ETC.

No. 14,199.—Stephen C. Mendenhall.—*Improvement in Flour Bolts.*—Patented February 5, 1856.

The inventor says in his specification: The object of this improvement is to combine a merchant and a country bolt. The valves, as shown by full lines in fig. 1, represent the bolt on merchant work. It will be seen that while valve g^1 is on rib *s* 6, its indicator is also on No. 6 in the cord-box H, and so of the other valves and indicators. To put the bolt on custom work, both the indicators at No. 6 and No. 2 are moved to No. 4, which will place the valves g^1 and g^3 to rib *s* 4, as indicated by dotted lines in fig. 1. All the flour will now pass through the one spout at *s* 4, and the offal through spout *b*.

Claim.—The direct and positive contraction and expansion of the valves *g g g*, between fixed and varying points, substantially in the manner and for the purpose set forth.

Also, the combination of the expanding and contracting valves *g g g*, with the cords *d d d*, pulleys *f f f f*, drums *x x x*, and indicators *j j j*, or their equivalents, for the purpose specified.

No. 15,455.—S. C. Mendenhall and J. Conner.—*Improvement in Flour Bolts.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—1st. The manner described of varying the action of the revolving brushes *b*, by giving to the brush-bars *a* any desired backward or forward angular set on the radial arms or bosses which carry the brush-bars, in relation to the run or travel of the same within the screen cylinder, by means of the links *m*, connecting the inclined pivots or rods g^3 of the brush-bars with a turning ring *n*, arranged to revolve together with the brush-shaft, but made capable of circular adjustment thereon, or the mechanical equivalents of such devices, operating essentially as and for the purposes specified.

2d. In combination with the radial expansion and contraction of the

brush-bars and brushes within or against the screen cylinder for graduating the rub of the brushes, as specified, giving any varied angular set backwards or forwards to such graduated rub, by so connecting the brush-bars with the devices which effect their expansion or contraction as to admit of a variable inclined set or position, in relation to the run, being given the said brush-bars and brushes, to adjust or improve the action of said radially graduated rub, as set forth.

No. 15,697.—GEORGE JUENGST.—*Improvement in Reversing Gear.*—Patented September 9, 1856.

The springs $f\,f^1$ are fastened midways between their ends to pivots *e*, which project through holes in the hubs *d*; the outer ends of said pivots are square, and have a light screw-twist and pass through square holes in disk *g*, which disks sit loosely on the shafts B and C, and may be thrown in or out by means of their necks *h*, fork *i*, and a proper hand-lever. The effect of drawing them out will be to turn the pivots *e* slightly by reason of their screw-twist, and thus to relieve the forks O P R S of the pressure of the ends f^1 of the springs; the forks will be slightly turned on their pivots *c* in consequence of said pressure of springs *f*, the arms $o^2\ p^2\ r^2\ s^2$ will be brought into contact with their respective rims *a b*, and the arms $o^1\ p^1\ r^1\ s^1$ will be thrown off the said rims. The reciprocation of the piston-rod H and rack L, and the revolution of the cogged-rims M and N in the direction of arrows 1 2 and 4, will now have the effect of revolving the hubs *d* and shafts B, C, and D in directions opposite to the arrows 3, 5, and 6, causing the main shaft D to revolve continually in a direction opposite to what it did before.

The inventor says: I do not claim the described mode of converting motion, as it is well known.

Neither do I claim the substitution of the nipping-pawl for the ordinary pawl and ratchet, as that is also well known.

But I *claim* the described arrangement of the disks *g*, the screw-pivots *e*, and the springs *f f*, or their equivalents, whereby the action of the nipping-pawl is reversed, and the motion communicated by it changed in direction without any change of direction or cession of motion in the moving power.

No. 15,630.—RICHARD WARD.—*Grain Cleaner and Separator.*—Patented August 26, 1856.

The grain to be cleaned passes from the hopper *f* through the opening *l* into tube *a*, the heavier grain falling through the contracted vent of the tube *a* below; the lighter grain and dust, being carried up by the current of air generated by fan *i* over the top of the tube side and hinge *d*, and striking the projecting part *q* of the casing, is projected towards the front side of the second tube and falls below into trough *m*, the dust passing through the fan *i*.

Claim.—The combination and arrangement of the curved board *q q* with the slide R R, the chaff-conductor S, and the slide T T, substantially in the manner and for the purpose specified.

No. 16,088.—Chase B. Horton.—*Improvement in Machines for Cleaning Grain.*—Patented November 18, 1856.

Motion being given to the shaft B, the grain enters the feed-chamber F through the spout G, where it meets the suction blast created by fan K, which separates the impurities from the grain, driving them out in the direction of the arrows through the switch-throat L, the blast escaping through the apertures M of the blast-head E, while the chaff descends and passes out through N. The grain passes through the eccentric rings H into the case C; the shaft B is surrounded in the feed-chamber F by a case F^1, which prevents the grain striking it; this case is provied with two V-shaped ridges *u* and *w* (fig. 5), which distribute the grain towards the outside of the chamber before entering the case C. As the grain passes through the case C, it is acted upon by the beaters I; and upon being discharged through the spout J, it is exposed to another blast entering the chamber D, and created by a suction-fan S, which latter blast delivers the grain from all impurities.

Claim.—1st. The double-acting V-shaped distributor, in combination with the concentric ring-guard, constructed as described, for the purposes of distributing the grain to the periphery of the cylinder while falling and preventing its return in the blast.

2d. The construction and arrangement of the double blast-head E, in the manner and for the purpose described.

3d. The combination of the spring partition R with the spring-valve K, so arranged that the expansion of the blast-tube, by means of said partition, shall cause the valve K to open and thereby admit air above the mouth of the tube.

No. 15,785.—Hamilton E. Smith.—*Improvement in Grain-Separators.*—Patented September 23, 1856.

The grain is fed into the machine through the hopper L; the fingers *f* and f^1 catch the straw; these fingers, represented in a perspective view at fig. 2, are made to vibrate on their respective pivots *e* and e^1, by means of the eccentrics 3 and 4 acting upon the levers H and H^1 of the common fulcrum *d*, and by straps I and bars J. The fingers shake out the grain and pass off the straw. The grain falls then through the screens *c* and c^1, leaving there the coarser impurities, and eventually drops to the inclined board M, where it is acted upon by a blast from fan O, and passes out at the opening N. A vibrating motion is imparted to the screens by means of the eccentrics 1 and 2, rods D and D^1, and straps E and E^1 turning on the common fulcrum *b*.

Claim.—The arrangement of the vertically vibrating shakers and horizontally vibrating screens, for the purpose of separating grain or other material, the whole being operated by a combination of mechanism substantially such as described.

No. 15,879.—Joel W. Cormack and Ferdinand C. Walker.—*Improvement in Grain-Separators.*—Patented October 14, 1856.

In this apparatus the grain passes from the hopper D into the tube C; and motion being imparted to the fan *c*, said fan causes the air to pass up through the air-chamber C; and as the air passes between the flanges I, in the funnel *k*, a spiral motion is imparted to it, by which a greater length of draught is obtained in the tube C of a given length, for the purpose of operating on the parts to be carried off.

Claim.—The cylindrical cheat-box, into which the air-tube enters, arranged as described, and for the purpose set forth. The flanges I and funnel *k*, or their equivalent, in combination with the tube C, for the purpose of creating the spiral or whirlwind blast in a grain-separator, as described.

No. 16,103.—Joseph Lyndall, assignor to Cyrus Roberts.—*Improvement in Grain-Separators and Conveyers.*—Patented November 18, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—1st. Suspending the conveyer on vertical radius bars or pendulum bars, which swing it forward, first in a nearly horizontal, and next in an upward direction, and then swing it back, first moving it suddenly downwards, and next horizontally or thereabouts, until it reaches the place where it started, substantially as set forth.

2d. Swinging and rocking the conveyer, as described, on radius bars of unequal lengths, which raise its rear end somewhat further and faster than its front end, in the manner and with the results set forth.

3d. Arranging the head of the vibrating shaking fingers in a recess in the bottom of the conveyer, substantially as described. But I make no claim to the arrangement of the vibrating fingers below the conveyer, so that the straw and grain, after leaving the conveyer, will pass on to the fingers.

4th. The combination of an adjustable bar or guide with an arm projecting from the head of the vibrating fingers, so that the upward throw of the fingers may be varied while the limit of their descent remains unchanged, as set forth.

5th. Constructing the screening apertures in the bottom of the conveyer with channels on the front sides of the tops thereof, to facilitate the separation of the grain and chaff from the straw, and the passage of the straw through the conveyer, as set forth.

No. 15,180.—David Hinman.—*Improvement in Hanging Grindstones.*—Patented June 24, 1856.

The stone A being placed between the two moulds B and C, a rod is passed down through the hole L and through the eye of the stone into the hole D. By this means the stone is lined, so that the stone and

shaft will be true with each other, as the grooves in the moulds in which the shaft is formed are trued with the face of the moulds, which come in contact with the stone.

Claim.—Hanging grind stones in the manner herein described, having the shaft and flange, with or without a crank, cast in one piece, with the stone firmly secured thereto by the shrinking of the metal.

No. 14,547.—Richard Hunt.—*Improvement in Horse-Power.*—Patented March 25, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The combination of the central pivot and annular track secured to the ground, as described, with a master-wheel N fitted with a central eye, and an annular series of conical supporting-wheels W, whereby the usual supporting-frame to combine these several parts is dispensed with, while the requisite rigidity and steadiness of the master-wheel is maintained, as set forth.

No. 15,296.—Philip H. Kells.—*Improvement in Reversible Horse-Power.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claim and illustrations.

Claim.—Constructing the machine so that the shaft of the over-reaching belt-pulley W^1 may be reversible when the gear-wheel W shall be shifted to, and secured upon, the opposite end of its shaft, and that in every such position of the pulley-shaft, the end of the gear-shaft and the fastenings thereon shall be within the plane of the inner side of the arms, spokes, or face of said pulley; the gear-wheel fastenings being the same on both ends of its shaft, and so related to the pulley-shaft that the converge-gear shall duly mesh with the pinion of said shaft at each change of position of these several parts, substantially as herein set forth, for the purpose of changing from a right to a left hand machine, or the reverse.

No. 14,750.—Thomas D. Burk, assignor to John C. Miller and Charles A. Fowler.—*Improvement in Link Gearing for Horse-Powers.*—Patented April 22, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim the horse-power consisting of the roller moving in a circular path about a centre, as that is old; neither do I claim the universal joint, swivel, or other parts by themselves. But I *claim* the mode of converting the motion of an axis P rolling around a centre into an alternating motion at right angles to the plane described by the rolling axle, by means of the combination of the crank E F, connecting link G, universal joint H, and swivelling bolt of the same.

No. 15,693.—Albert W. Gray.—*Improvement in Links of Horse-Powers.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Constructing the links composing the endless chain of corrugated sheet metal, so that the corrugations shall serve both as hinges for connecting the links and as cogs for gearing with the cog-wheel on the driving-shaft, substantially as specified.

No. 16,040.—Benjamin Mackerly.—*Improvement in Cider-Mills.*—Patented November 4, 1856.

The apples in the spout B are seized by the double series of hooks *d*, which rapidly draw them into the machine and at the same time crush them between the saw-edged teeth *f* of the concave A, and move them along laterally to be more finely disintegrated by the joint action of the double series of saw-edged teeth *e* on the grinding cylinder *g*, and the single series of saw-edged teeth in the concave A. The crushed portions of the apples will be steadily moved in a lateral direction, and will be discharged through an aperture at the opposite end of the concave.

The inventor says: I am aware that round teeth whose sides are spirally and annularly grooved have been used on a cylinder, and within the concave combined therewith.

I *claim* the combined use of flat-sided saw-edged teeth upon the cylinder and within the concave, substantially as set forth.

No. 16,261.—Harry Abbott.—*Improvement in Cider-Mill.*—Patented December 23, 1856.

The apples in the hopper D pass down to the crushing cylinder B and are discharged, when crushed, to the endless cloth I, which conveys the pomace between the pressing rollers E and *a b c*, and thence delivers the pressed pomace at the end of the machine, while the cider is strained through cloth I, and is then conducted by spouts L into a receiving vessel M.

Claim.—The arrangement of the small pressing rollers *a b c* in the arc of a circle upon vibratory arms N, to which the pressing power Q is applied, substantially in the manner and for the purposes as herein set forth.

No. 15,255.—Cyrus Roberts.—*Improvement in Corn and Cob Mill.*—Patented July 1, 1856.

The spider *h* being mounted upon the collar *g*, (which collar is concentric to, and form a part of, the ball *e*,) and the hull or concave *f* being secured and adjusted between its arms *h*, by means of set-screws

i, it must be apparent that any vibration given to the one will be communicated to the other without altering their relative position to each other.

Claim.—The method of rendering the grinding surface of the hull or concave *f* concentric with that of the ball *e*, and of preserving this concentricity by mounting the revolving spider *h*, between the arms of which the rim of the hull is screwed and adjusted upon a neck or journal *g* formed on the under side of the ball *e*, in the manner and for the purpose substantially as described.

No. 15,060.—JONATHAN BURDGE.—*Improvement in Cutting Flour Mill.*—Patented June 10, 1856.

The inventor says: I do not claim adjustable knives for the purpose of grinding grain, nor furrows cut in the grinding surfaces of mills; nor do I claim simply the arrangement of opposite grinding surfaces, so that their teeth or cutters cannot be brought into contact; as such devices have been used before. But I *claim* forming the surface of the cutter-head with central and peripheral ledges *d e*, and a plane or level depression *h* between them, equal in width to the cutters, and in depth to the depth of cut required, for the purpose of easily setting the cutters all to an exact and uniform height, and of preventing the possibility of their being brought into contact with the counter-plate above, and also for the purpose of preventing the escape of meal, or particles of grain, at the periphery.

I also claim the notches or nicks *p p* in the ledge *e* of the cutter-head, and the notches *q q* in the ledge or surface *f* of the counter plate *f*, said notches having the least possible width at their inner ends, and gradually widening or flaring outwards; when the two sets are arranged in combination, so as to cross each other, and thus mutually scrape outward, by their edges, any dust or glutinous substance which may have a tendency to adhere to the opposite surfaces of the ledges.

I also claim the peculiar construction and arrangement of the counter plate with bent gathering, and retaining ridges *n*, running across from the inner to the outer peripheries of a conical concavity *m* in its under side, the lower edges of said ridges being all in the same plane, and even with the surrounding surface *f*, when combined with the cutters *i i*, and operating in connexion therewith.

No. 16,249.—THOMAS B. STOUT.—*Improvement in Grinding-Mill.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim simply feeding the corn or grain through the sides of one of the burrs; nor do I claim a dress composed of alternate long and short ridges, together with feeding spaces, in themselves separately.

I *claim* the arrangement and combination of the feeding cavities *a a*, feeding apertures *g g*, and the form of dress given to the grinding surfaces, substantially as specified.

No. 15,680.—Anson Atwood.—*Improvement in Dress of Metallic Hemispherical Grinding-Mill.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The series of radial ogee ribs and furrows, in combination with the intermediate or interposing ribs and furrows, cracking teeth, and hemispherical-formed grinding surface, combined in the manner substantially as described.

No. 14,227.—Clement Dare.—*Improved Method of Regulating Feed-Gates for Mills, &c.*—Patented February 12, 1856.

Claim.—The combination of the floats 2 and 3, rods 4 and 5, beam-lever 6, and sliding-bar 7 7 *d*, these in combination with the cam-lever 8, shaft 17, levers 11 11, and rods 12 12, or their equivalent, for operating the gate 13, in the manner and for the purpose set forth.

No. 15,488.—Jacob O. Joyce.—*Improvement in Corn and Cob Mills.*—Patented August 5, 1856; antedated February 5, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The arrangement of the segments I on the upper cone, and the segments K K^1 on the lower cone, so that the former shall pass through between the latter, gradually contracting the spaces between their crushing surfaces, substantially as set forth.

No. 14,132.—Thomas Crane.—*Improvement in Flouring-Mills.*—Patented January 22, 1856.

The arrangement of the annular space around the bed stone and the hoop *c*, with its wings *e* moving therein, will prevent the flour from accumulating about the running stone and heating.

Claim.—Securing the bed-stone *b* within a hoop *p*, rising from a suitable bed plate p^1, when the said hoop has an open annular space surrounding it, which is supplied with a discharging spout *n*, and has a rotating hoop *e* arranged and operating therein, substantially in the manner and for the purpose herein set forth.

No. 14,179.—Joseph Weis.—*Improvement in Flouring-Mills.*—Patented January 29, 1856.

F represents the burr provided with a steel covering G. The concave *h h* is provided with longitudinal grooves *i*, which, as the burr re-

volves, catch the grain and turns its direction between each of the pieces *h*.

Claim.—The longitudinal grooves *i* between the dovetailed steel pieces, constructed and arranged in the manner set forth, and for the purpose specified.

No. 14,164.—Lucius Paige.—*Improvement in Grinding-Mills.*—Patented January 29, 1856.

When the article to be ground is placed in the hopper, and the screw A is put in revolution, the wheels D, the peripheries of which are also provided with screw-threads, will be set in rotation towards the screw, and will move the material towards it, and first crush it between them and the screw; and finally, by the action of the screw, the material will be ground and discharged.

Claim.—Arranging and combining with a screw A, in manner substantially as described, one or more wheels D and a hopper C, whereby such mechanism is made to answer the purpose of a mill for grinding.

No. 15,841.—Joel W. Cormack.—*Improvement in ut-Mills.*—Patented October 7, 1856.

The grain enters this apparatus through the spout C, and passes downward between the conical cap B and the revolving cone E; and in passing through between the teeth of said cones, the white-caps, straw, and other foreign matter are broken; the grain then falls upon the flat surface G, whence it is fed into the hopper F by the creepers *c;* and passing down the hopper F, it falls through the revolving cone M upon the stationary cone I. It then is carried outward by the centrifugal force of the revolving cone, and is scoured by the action of the corrugated surfaces of the flanges J and stationary cone I, as it passes over them.

The inventor says: I do not claim creepers, or flanges, or cones, in themselves, as new.

But I *claim* the combination of the cones E and creepers *c c*, arranged and operating in connexion with the flanged rims J J J J, attached to the cones H and M, in the manner and for the purpose set forth and described.

No. 15,868.—W. P. Coleman.—*Improvement in Mill-Stone Dress.*—Patented October 7, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim a circle dress or curved furrows, the radii of which are equal to the radius of the stone or thereabouts, nor yet the straight tangential furrows, of themselves or apart from their relative arrangement, combination, and operation together in the

two stones. Neither do I claim of itself the curved furrows arching in opposite directions in the two stones, and gathering in the grain towards the eye. But I *claim* forming the master and subordinate furrows C D of the stones substantially as described, viz: the straight portions of the furrows being tangential with the eye and with circles concentric therewith, and the curved portion being segments of a circle of equal curvature, or thereabouts, to that of the outer peripheries of the stones; for the purpose of rapidly throwing the grain outwards in the early action of the furrows, and retarding or gathering it in by the after or outer portions thereof, as set forth.

No. 16,074.—Thomas B. Stout.—*Improvement in Mill-Stone Dress.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim making the furrows of different depths, nor simply terminating deep furrows with shallower ones at the periphery, as I am aware that the equivalents of such have before been used. But I *claim* the combined arrangement of furrows upon the grinding plates, viz: the inner furrows *d d*, having their abrupt edges on the two grinders, meeting by the revolution of the runner, deep at the central ends, but running out to the surface at the outer ends; while the peripheral furrows are arranged oblique to the inner furrows, their edges inclined in the opposite direction, and having a considerable proportion of plane surface between them, substantially in the manner and for the purposes described.

No. 15,346.—J. G. Siemers.—*Improvement in the Adjustment of Mill-Stones.*—Patented July 15, 1856.

The stationary stone A is secured within a flanched metallic rim *f*, whose projecting ears rest upon springs *m*, placed upon the upper ends of tubular projections *h;* the rim *f* is kept in place and can be adjusted by means of the set-screws *n*. The running stone B rests on the flanch *p* of the shaft D, by means of the circular plates *c* and *d*, separated from each other by the springs *i i*, and adjustable by means of the set-screws *e e*.

The inventor says: I do not claim any arrangement of the running stone or its spindle, by which an elastic bearing of said running stone against the stationary stone is produced; but I *claim* supporting the stationary stone upon a series of elastic and readily adjustable bearings, when the said stationary stone is combined with a running stone which rests upon a series of elastic and readily adjustable bearings, which are combined therewith and with the spindle or shaft of the same in such a manner that the faces of said stationary and running stones are enabled to mutually self-adjust themselves to each other, and are also enabled to be adjusted.

No. 14,128.—David Marsh, assignor to Thomas B. Stout, Joseph A. Cody, and Himself.—*Improvement in Hanging Mill-Stones.*—Patented January 15, 1856.

The runner-stone G is suspended upon the arms *b* of the carrier F. The feather E passes through a slot in the spindle D, and is pivoted at *a*, so as to allow it slight play. The spindle is passed through the central hole of the carrier, so that the ends of the feather come to rest against the shoulders *f* of the slots in the central hole of the carrier, and the carrier is thus suspended upon the spindle. Keys *g* are finally driven into the part *d* of the slots, through which the ends of the feather have been introduced. The keys serve to retain the feather in the recess.

Claim.—The mode of securing the carrier to the spindle, by means of the vibrating feather inserted in the spindle, it admitting of being secured by keying in a recess in the cup, substantially as set forth.

No. 14,109.—R. D. Nesmith.—*Improvement in Machines for Dressing Mill-Stones.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the method shown for adjusting the machine radially or tangentially with the arbor E, neither do I claim the method of operating the pick-arm C^1 for these devices have been previously used. But I *claim* securing the back end of the pick-arm C^1 to a head F^1 attached to a sliding-plate G^1, the head being allowed to turn on the sliding-plate, whereby the length of the pick-arm may be increased or diminished, as desired, and also the position of the pick-arm varied in the machine as set forth.

No. 14,859.—Simon W. Draper and Reuben M. Draper.—*Improvement in Machines for Dressing Mill-Stones.*—Patented May 13, 1856.

The inventors say: This invention consists in certain improvements on the machine for dressing mill-stones which is the subject of letters patent granted to us May 25, 1852. Our improvement consists in a certain mode of actuating the pick, for the purpose of causing it to strike with the same force throughout in cutting a long series of parallel furrows.

Claim.—In combination with the inversion of the cam G, the employment of a secondary lever *m* attached to the sliding-piece A^1, or arranged in any equivalent manner, to cross the face of the cam on one side of the centre, and transmit motion therefrom to an arm c^1 on the pick-shaft F, whereby; in all changes of the relative positions of the pick-shaft and the cam, the pick is operated by the cam in such a manner as to give a uniform force to the blow.

No. 15,250.—M. Painter and C. Painter.—*Improvement in Swinging Spout for Feeding Mill-Stones.*—Patented July 1, 1856.

The grain passes from the shoe C down through the tube H, the lower end of which is near the bed-stone J. The tube F remains stationary within the damsel; but the tube H turns with the bail I, the universal joint attachment *b* permitting this. By this improvement the grain is prevented from coming in contact with the sides of the eye E; and consequently the clogging of the eye, in consequence of the grain adhering to it by the centrifugal force, is prevented.

Claim.—Suspending the oblique eye feeding-tube H, by universal joint *b*, from above, in combination with and for free rotation and universal movement of said tube by the revolving stone A, as and for the purposes specified.

No. 16,155.—Albin Warth.—*Improvement in Converting Rotary into Reciprocating Motion.*—Patented December 2, 1856.

By turning the shaft G, motion will be given to the pinion H, through the medium of the gearing *f g h*, and the pinion H will move the rack D; and when the end of the rack reaches the pinion, the head F will make half a revolution, so that the pinion H will pass around the end of the rack and gear into its under side. The head also makes another half revolution when the opposite end of the rack D reaches the pinion H, so that said pinion may pass around upon the upper side of the rack. By this means a reciprocating motion is given to the bar B and shaft C, when the shaft G is rotated, or by working the bar B back and forth a rotating motion is given to the shaft G.

Claim.—The intermittent, semi-rotating-head F, or its equivalent, carrying, in eccentric relationship to the bearing of said head, a driving-pinion H, for gearing with the endless-rack D, and, driven by or operating through suitable gear, a pinion *f*, arranged with separate action, concentric to said head—the latter being combined with sliding stops *j j* or their equivalents—all arranged and operating together, substantially as and for the purposes set forth.

No. 14,568.—Robert Maffett.—*Improvement in Method of Converting Reciprocating into Rotary Motion.*—Patented April 1, 1856.

When the piston racks B and C reciprocate in opposite directions, the teeth of one of the pinions D D^1 will gear with one of the racks, producing the rotation of the shaft E. As the extreme of each rack nears the end of its stroke, the forward lozenge projection L gradually rises up the incline of the guide groove H, lifting the front end of each rack. At the termination of each stroke, the lateral projections *f* or f^1 press upon the edge of the rim, enclosing the rack teeth, and lift the near lozenge into the cavity *g* of groove H. With the return stroke of both pistons the inclination of cavity *g*, acting on lozenge L, carries the rack downward, and causes the second tooth of the pinion to engage the

rack opposite, and thus continue the rotation of shaft E in the same direction.

The inventor says: The upper rack teeth meshing with pinion A, enables the back stroke of the free rack to aid the operating rack; this, however, I do not claim.

I am also aware that opposite semi-toothed pinions have before been used in combination with racks for converting reciprocating into rotary motion. I therefore make no claim to such; neither do I claim the use of guide grooves and lugs on the racks by themselves.

But I *claim* the arrangement of the laterally projecting lifting teeth *f f* on the same pinions, in combination with the guide grooves H and lozenge projections L, as described.

No. 16,303.—Samuel Gissenger and John W. Kellberg, assignors to D. A. Morris.—*Improvement in Converting Reciprocating into Rotary Motion.*—Patented December 23, 1856.

Motion being transmitted to the piston rod D, it causes rod C to drive the pin *c* along the slot *d* d^1, and one end of the bar E, entering into one of the notches in the rim *a* of the wheel A, is caused to turn said wheel on its axis; the bar being confined in the notch by the working of pin *c* in the slot *d* d^1, the arcs of which are both parallel with the inner circumference of rim *a*. While the pin *c* moves from end to end of one arc of the slot, the wheel A makes one-fourth of a revolution. After moving along one arc of the slot, the pin *c* is prevented from going back in the same arc by means of the levers G G^1, and caused to pass along the other arc, by which means the continuous circular motion of wheel A is produced.

Claim.—The combination of the disk A having an externally notched rim *a* and being attached to the shaft to be rotated, the standard F, or its equivalent, containing a double arc-formed slot *d* d^1, the bar E that is connected by a vibrating rod C with the piston rod or other reciprocating object, the pin *c*, the levers G G, and springs *j j*, the whole operating substantially as and for the purpose specified.

No. 14,473.—John R. Sees.—*Improvement in Adjusting the Brasses of Connecting-Rods.*—Patented March 18, 1856.

The nature of this invention consists in the manner of securing the boxes in connecting-rods, and following up their wear by two wedges D, the set-screw F, and bridge-piece E; dispensing thereby with the straps, gibs, and key.

Claim.—The combination of the bridge-piece E and the wedges D D, as herein described for the purposes set forth.

No. 15,284.—R. M. Dempsey.—*Improvement in Smut-Machines.*—Patented July 8, 1856.

The grain to be scoured passes through the hopper G down upon the concave E; and motion being given to the shaft B, the grain is sub-

jected to the necessary scouring and beating by the rod *b;* and the grain passes from the centre of the head E towards its periphery and over the edge, falls into the space below the head, and is carried around by the wings *d* into the spout *g;* the grain on its passage being subjected to a blast generated by fan I, and the smut is blown through the perforated conical screen D, and passes through a passage communicating with curb C. The grain passes through the spout *g* and falls into the spout J.

Claim.—The concave head E, having vertical rods or spikes *b*, attached and fitted within an invertal conical screen D, the head E, having wings *d* attached to its under side, as shown, and its upper surface corrugated, as shown, or in any other manner, for the purpose specified.

No. 15,442.—G. H. Starbuck and L. D. Gilman.—*Improvement in Smut-Machines.*—Patented July 29, 1856.

The shaft E being set in motion, the grain passes through the aperture *i* upon the disc *e*, which is provided with spikes *f*, and is thrown by centrifugal force to the edge of said disc and falls down upon the upper plate H, then down the funnel I to the centre of middle plate H, and is carried by centrifugal force to the edge of said plate and drops down upon the second funnel I, whence it passes to the lower plate H, and lower funnel I, to the centre of the screen F, and passing over the edges of said screen is finally discharged through the aperture *d* of basin C.

Claim.—The combination of the screen F, plate H, funnels I, and disc *e*, with spike *f* attached, when said plates are attached to the shaft E and fitted within the case or shell A, as described, for the purpose set forth.

No. 15,978.—Harvey B. Ingham.—*Improvement in Smut-Machines.*—Patented October 28, 1856; antedated June 24, 1856.

This invention consists in the arrangement of a receptacle D, between the cylindrical blast-pipes E and F, and extending underneath the beating cylinder *w*, into which all the offal from the screen, blast-pipes, and beating cylinder is precipitated, and in which is a slatted chute *l*, which conducts cheat, seeds, and the heavier parts to the bottom, where they are discharged from the machine, at the same time the smut, dust, and chaff are drawn through the lattice and passed out through the fan-chamber G.

Claim.—1st. The receptacle D, arranged and operating in combination with the blast tubes and beating cylinder substantially as specified.

2d. I claim the arrangement for discharging the grain by its centrifugal action at an aperture on the upper side of the beating cylinder, and through a channel eccentrically around the blast-pipe, whereby the grain is thrown into the blast higher in the pipe, and is distributed more evenly therein, as set forth.

XIV.—LUMBER.

No. 14,752.—Kelsey Curtiss, assignor to the "Winsted Auger Company."—*Improved Auger.*—Patented April 22, 1856.

In consequence of the small bar A upon which no screw is cut, the cutters or lips of the auger are left free to enter the wood, boring it more rapidly and easily than when the screw and the large twist of the auger are connected.

Claim.—The making of an extension-bar, connecting the small screw on the end of the auger or bit with the lips or cutters of the auger proper.

No. 14,829.—N. W. Robinson.—*Improved Machine for Manufacturing Barrel-Heads.*—Patented May 6, 1856.

The lower disk E^1 is depressed, and the upper disk E is elevated; the frame P is also depressed, and the clamp K is kept elevated or raised, by means of a spring T on the upper part of the frame A. The stuff U to be formed into barrel-heads is placed upon the bed J directly between the two cutting disks E E^1, the slide O having been previously withdrawn from underneath the bed. The clamp K is then pressed down upon the stuff by depressing the lever N, and the brads *h* in the under edges of the segments *d* enter the stuff and hold it firmly upon the bed J; the lower cutting disk E^1 is now forced against the under side of the stuff U, and the cutters F^2 F^2 plane the under surface of the stuff, while the cutters G G bevel the edges, and the vertical cutters I I cut half through the stuff. The lower cutting disk E^1 is then allowed to fall, and the slide O is shoved underneath the bed J and raised upward against the stuff by operating lever G, which raises the frame P. When the slide O is raised, the brads *m* on the ledge *l* penetrate the under surface of the stuff, the upper rotary disk E is brought down upon the stuff and the cutters F^2 F^2 plane the upper surface, and the cutters G G bevel the edges and the vertical cutters I I cut entirely through the stuff.

Figure 1 represents a front elevation.

Figure 2 is a horizontal section (line *z z*).

Claim.—1st. The peculiar construction of the clamp K, as herein shown and described, viz: said clamp being formed of a ring *e* having segments *d* attached to its under side by set-screws *g* placed between the upper surface of the segments and under surface of the ring; by which construction the clamp may be enlarged or contracted, so as to suit different sized barrel-heads.

2d. I claim the stationary bed-piece J and rotary planing disk E, in combination with the sliding-clamp O, for the purpose of allowing said planing disk to plane and chamfer the whole surface of one side of the barrel-head, and then support it in its position while being chamfered and planed on the other side.

No. 15,763.—Henry Gross.—*Improved Device in Machines for Manufacturing Bed-Pins.*—Patented September 23, 1856.

L and I are two cutters near the outer end of the machine, the cutter L cutting the stick to the diameter of the head of the pin, the cutter I cutting it to the size of the shaft of the pin; and when the desired length is attained, the inner end of the pin comes in contact with the follower D and thus raises the lower end of the lever N, which plays in the slot O of the follower D; said lever turning on the pivot F and thus depressing the chisel G which forms the head of the pin, and when completed the pin is thrown out by the action of spiral spring C.

The inventor says: I disclaim the throwing out of the finished pin by a spring, and the employment of a movable cutter for forming the head, when a distinct and separate operation is required to bring it into action, as in W. McBride's patent of February 28, 1854.

But I *claim* fixing the head-forming V-cutter to a lever operated by the longitudinal movement of the pin, as described, whereby but one hand of the operator is required for forming the entire pin.

No. 14,511.—J. W. Mahan.—*Improved Carpenter's Bench.*—Patented March 25, 1856.

a a a are the posts, B B B B the cross ties of the bench. The bottom H of the jointing box A is made movable by means of the table boards J J, the raising wedges *i i*, connecting rods *q*, and lever O, which work on the pivot *p*. The lever is secured to its position by a thumb screw. The board E to be jointed is held fast by the clamp jaw F, and the plane *m* is moved until the slides *n n* come down to the bearings *l l*.

B is the facing box. The board to be faced is held to its place in the rebates *x x* of the sliding jaws 6, by the weights W. The weights are raised by depressing the lever *t*. In facing lumber, the plane 11 is moved back and forth until the arms 12 come down to the bearings 10.

I do not claim the principle of running a plane with slides on it in a box, or the slides on the edges of a box, but I claim the construction of a work bench, substantially as shown by my model, drawings, and specification, together with the peculiar construction of the planes for pointing and facing.

No. 15,739.—J. W. Mahan.—*Improved Carpenter's Bench.*—Patented September 16, 1856.

By operating the levers g^1, which are connected by a rod E, the bottom D can be raised or lowered to suit the convenience of the operator. By operating the lever 10, the front and back plates F and G can be operated towards each other for the purpose of securing the stuff to be worked between them, and the facing box H can be operated by moving the slides L simultaneously, thus causing the box to open to the same degree at each end.

Claim.—The carpenter's and cabinet maker's assistant bench, constructed in any manner substantially the same as set forth.

No. 14,390.—Clinton W. Clapp.—*Improved Bench Clamp.*—Patented March 11, 1856.

The block F to be clamped is placed upon the bench A over the groove B; one end of the block being against the hook C, the shank E of the other hook D is placed in the groove B; and the hook D forced into the opposite end of block F, the part *b* of the shank E is then forced towards the hook D, and the shank is thereby wedged firmly in the groove B. If the hook D is shoved rapidly towards the block F, when forced into it, the part *b* will, by its momentum, wedge the shank E in the groove B, the bevelled end of part *b* working past the bevelled end of the part a^1, and thereby increasing the width of the shank at this point and causing the shank to bind firmly in the groove.

Claim.—The hook D attached to the shank E, which is formed of two parts a^1 *b*, having bevelled ends and connected as shown, the shank being fitted in the groove B in the bench, and used in connexion with the stationary hook C, substantially as shown, for the purpose specified.

No. 14,569.—J. W. Mahan.—*Improved Mitering-Bench.*—Patented April 1, 1856.

The stuff is fed to the saw by means of the foot treadle D and the raising bottom *g*. D D D D, &c., are mortises cut into the mitre box C to receive the saw, which is only allowed to move back and forth. The position of the mitre box is regulated by the scale B marked on the box. S represents a cutting chisel which is made to slide in two square boxes H H, fastened to the turning plate T. The bolt around which plate T turns passes through the plate A, which latter works in a groove *m* on the top of the bench.

Claim.—1st. The peculiar construction of the mitre box C, (or its equivalent,) as shown by my model, drawings, and specification; the advantages it possesses over any other in use being, first, so constructed that it never wears out by the teeth of the saw cutting the box, as is the case in ordinary boxes. Secondly, its easy combination with the other devices in my machine for accomplishing the various results which can be accomplished perfectly by any one, whether skilled or not in the ordinary way of accomplishing said results, viz: laying off and cutting picture frames, door and window frames, tenoning sash, &c.

2d. Its combination with the other devices represented, shown by my model, drawings, and specification.

No. 14,105.—Horatio McGrath.—*Improved Bits for Boring Felloes and Tenoning Spokes.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—The single twist auger *g* with a tapering shell-pod *h*, for the purpose of boring and tapering a mortise at one operation, as herein described.

I likewise claim the tenon auger, constructed as herein described, with its auxiliary adjustable cutter *l* to reduce the superfluous timber, and with its finishing bits *k*, arranged to cut a tapering tenon with a shoulder at right angles to its axis.

No. 15,652.—Henry Hayes.—*Improved Method of Boring and Mortising Hubs.*—Patented September 2, 1856.

In working this machine, the operator will take hold of the lever *i* with his right hand, and of the lever *s* with the left. By bearing down upon lever *i* the auger is brought in contact with the hub *m;* when the first hole is bored, the lever *i* is released and pressed backwards by a spring attached to its lower end. The lever *s* which has held the hub *m* stationary by a pin of its passing through one of the notches of index *l* is now pushed to the left, the index is released, and together with the hub *m* is turned as the roller *t* by the movement of the lever *s* tightens the band which passes around the pulleys of the shafts *k* and worm-wheel *n*. One hole for each mortise being bored, the carriage G is moved forward by operating upon lever *a d*, which movement brings the chisels in contact with the hub when every alternate mortise is made. The points of the chisels are then raised by operating the screw *b b*, which causes the rider H to swing on its pivoted end, and by which the front end is raised which supports the edges of the chisels, and the balance of the mortises are made in a zigzag position.

Claim.—1st. The adjustable frame B B B B, with its attachments, substantially as described and for the purposes set forth.

2d. The application of the rider H to the carriage G, substantially as described and for the purposes set forth.

3d. The combination of the index *l*, the lever *s*, and the roller *t*, substantially as described and for the purposes set forth.

No. 14,416.—George N. Stearns.—*Mortising and Boring Machine.*—Patented March 11, 1856.

The lever K being in a perpendicular position, as seen in fig. 1, is moved by lever T to an angle which throws either point of the paw L into a position to be thrust into pinion N according to the direction desired to be mortised. By moving downward lever D, the lever F (which latter is linked to lever D) is also moved downward, and the thick portion of cam J is withdrawn from lever K, and lever K is pressed to the cam by the upper half of the spring M, and causes the pawl to move backwards, the top of which being moved forward by the spring M causes the point of the pawl to drop between the teeth. At the time the cam moves back, the lower end of lever K moves forward, and the pawl turns pinion N, which is hung on a shaft O, on the inner end of which is a pinion P, which meshes into a rack R underneath the bed frame S. To reverse the feed motion of the bed frame, the position of K is changed by moving lever T so as to bring

the opposite side of lever K against the cam, when the opposite end of the pawl will catch into pinion N.

I is a spring lever between the guides *m m*, and may be adjusted higher or lower by a slot and set-screw at its lower end. *c* is a stationary rack into which meshes pinion *a*, which turns loosely on the inner end of shaft Z. By turning crank *d* the bevel wheel Y meshes into wheel X and turns the auger. When the auger has bored the desired depth, the end of shaft Z passes below a projection in the spring I, which presses against the pinion *a* over the shaft and causes it to clutch to the shaft. The pinion *a* then revolves with the shaft Z, and is moved up the stationary rack; and the spring I, by its peculiar form, regains its position at the end of shaft Z. Thus the auger receives its return motion.

The inventor says: I do not claim a movement of the carriage exclusive of the means by which it is done.

1st. I *claim* an adjustable cam J in combination with levers F K T, spring M, pawl L, pinions N and P, and rack R, as set forth in the specification.

2d. I claim the use of the spring, or its equivalent, to move the clutch which gives the return motion to the auger.

No. 16,101.—G. H. Stevens.—*Improved Boring and Mortising Machine.*—Patented November 18, 1856.

As the shaft D is rotated, motion is communicated to the shaft C, and the hammer H is operated by crank *a* and pitman G. The auger K is rotated by the wheels I and J. The stuff to be mortised is placed underneath the frame A, and the auger bores the hole while the chisel N, in consequence of being acted upon by hammer H, is driven down and makes a rectangular mortise, the chisel squaring the round hole made by the auger. The frame B is fed downward as the work progresses, in consequence of the wheel I^1 gearing into rack L.

The inventor says: I am aware that the hollow chisel and bit have been previously used, and I therefore do not claim those parts irrespective of the mode of arranging and operating the same.

But I *claim* attaching the auger or bit K, chisel N, and hammer H, to the sliding frame B, and operating the auger or bit, hammer, and frame, as shown and described, for the purpose specified.

No. 14,223.—Felix Brown and Adolph Brown.—*Machine for Boring and Turning Wood.*—Patented February 12, 1856.

When the process of boring commences, the support F is in such a position as to support the extreme end of the boring tool *b*, and remains in that position until the boring tool has entered some little distance into the wood, when during the revolution of cam M the recess in the circumference of said cam allows spring 7 to pull the support F backwards as fast as the wood is pressed forward against the boring-tool; by this means the depth of the hole to be bored can be regulated.

While the wood is being bored out the cams H H^1 act upon the slides 11 13, and consequently upon the tools 10 and 12, giving thereby, according to the shape of the cams, to the outside of the wood, the required form. When finished the cam N has turned round so as to allow spring 5 to draw the support E and boring-tool backwards; and the cam W, acting through lever X upon slide 14, forces the knife *m* or the circular saw G on the revolving wood, and thereby cuts the finished work off.

Claim.—1st. The support F guiding the extreme end of the boring-tool, said support being acted upon by a cam in connexion with springs or weights in such a manner as to remain stationary until the boring-tool has some little distance entered the wood, and is then made to go backwards in proportion as the wood is pressed forward, substantially as described.

2d. The arrangement and manner of working either the fixed knife or the revolving saw, for the purpose of cutting off the finished work in the manner specified.

3d. The arrangement and manner of working the tools 10 and 12 in connexion with the movable slides 11 and 13, attached to the fixed supports C acted upon by their respective cams H and H^1, for the purpose and in the manner substantially as described.

No. 15,678.—Samuel H. Yocum.—*Improved Method of Boring Hubs for Boxes.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

Claim.—Operating the bits *e e* by the adjustable feed-rods *n n* and lever *m*, with the mechanism described or its equivalent, in combination with the eight anti-friction wheels *c*, temper-screws *o o* and *k k*, that confine the hub D and expose a true circle to the bits *e e*, at any desired distance from the centre of the hub.

No. 14,968.—H. L. Mooney and W. B. Carter.—*Improved Tool for Boring Hubs.*—Patented May 27, 1856.

The tool is turned upon the end of the hub in the usual manner, and at each revolution the excavating cutter *m* and shouldering instrument *i* i^1 are moved simultaneously outward, by turning handles *f* and *g*. This outward movement of cutter *i* i^1 causes its cutting edge *i*, to remain constantly engaged with the side of the excavation, and thus prevents the rising of the tool by the action of the edge of the cutter *m*.

The inventors say: We make no claim to the receiving of the cutter from the centre of the hub during the progress of the excavation, as such constitutes no part of our invention.

But we *claim* the construction of the tool, with the excavating and shouldering cutters in separate slide bars *d* and *e*, capable of a simultaneous outward movement, and relatively so situated that the shouldering cutter is made to perform the double function of cutting the shoulder and holding the tool firmly upon the hub.

No. 14,327.—James Temple.—*Boring Machine.*—Patented February 26, 1856.

In operating this machine the boring shafts E are adjusted to the requisite distance apart by the sides *c* and *d*, and there secured. The long pinion D being adjusted to mesh with the driving pinions G by means of the slides *b*. The timber is secured between the standards *f* by screws *i*, and as the shafts E rotate they are gradually moved forward by lever H.

Claim.—The combination of the horizontal and vertical slides *b* and *c*, arranged and operating substantially as and for the purpose specified.

No. 16,241.—Samuel Klahr.—*Improved Boring Machine.*—Patented December 16, 1856.

The pump-stock or post to be bored is fastened on the top of carriage 2; and motion being given to driving wheel P, it is transmitted to pulleys J and E, which latter turns the tool D. The feed motion of carriage 2 is effected by the endless screw Z, pinion Y, shaft X, screw W, pinion V, and pulleys T, which latter are provided with pins U, which operate the endless chain R, to which carriage 2 is attached.

The inventor says: I *claim* the arrangement and combination of the shaft X, endless screw Z, pinion V, and pulleys T, as operating on an endless chain and railway carriage, for the purpose of boring pump-stocks, as described.

I also claim the shape and construction of the pinion V and pulleys T, with pins U, solid on one shaft, for the purpose set forth.

I do not claim the combination and arrangement of the drum J, with the device for operating the drum E.

But I claim the combination and arrangement of the drum J, with the device for operating both of the carriages C and 2 for boring post and pump-stocks, forming a neat portable machine, substantially as set forth.

No. 15,022.—William Samuels and George L. Stansbury.—*Improved Boring Machine.*

The square shafts of the augers A A A pass through the square mortices *a a a* of the cog-wheels B B B. By means of the sliding sash D and lever J the rotating augers are forced into the timber.

The augers A have pivot points above the round plates P, and turn against steel plates G G G, which draw out, so as to allow the auger to pass up through the upper cross-piece E, as the sash is forced down, thus allowing some of the augers to be made inoperative.

Claim.—The power boring machine, constructed as and for the purposes described in the foregoing specification.

No. 14,479.—Israel W. Ward.—*Improved Adjustment in Boring Machines.*—Patented March 18, 1856; antedated February 16, 1856.

The nature of this improvement will be understood from the claims and engravings.

The inventor says: I am aware augers have been so arranged as to be made to approach or recede from each other, and still remain in gear with the driving cylinder; but in practice, as heretofore arranged, they are too expensive and troublesome to go into general use. This I do not, therefore, claim.

But I *claim* having the cylinder D in the curved arcs C, and the shaft F in the straight slots *b*, cut in the pillar-blocks B, and uniting the journals D and F by the braces E, so that they may be adjustable, but always be held in gear with each other, substantially as described.

I also claim the hollow auger-shanks F^1 H^1, so arranged as to slide over the stationary shafts F H as they are forced out or drawn back, substantially as described.

No. 14,329.—Heman Whipple.—*Improvement in Instruments for Measuring the Length of Braces in Carpentry.*—Patented February 26, 1856.

The use of this instrument will be understood by reference to the engravings.

The inventor says: I do not claim determining the length of the hypothenuse and the subtended angles by a square and rule, as this has been done in several instruments.

But what I *claim* is the button *c*, to receive and clamp the square on the centre line of motion of said button, in the manner and for the purposes specified.

I also claim the traveller *e* with one side on the line of the slot *x* and centre of the button *c*, for the purposes and as specified.

No. 14,984.—Elliot T. Miller.—*Improvement in Callipers for Measuring Irregular Forms.*—Patented May 27, 1856.

The callipers are applied to the irregular form, the fingers C being forced in until they indicate the form; the plates F are then forced down under the spring-catches L, by which means the India-rubber blocks *g* are pressed against the fingers, and the latter are held in place.

Claim.—The callipers, consisting essentially of fingers C, plates F, and elastic blocks *g*.

No. 15,530.—Edward Q. Smith.—*Improvement in Manufacturing Chairs.* Patented August 12, 1856.

The sliding table 5 is furnished with a pillar 11, and clamped against the adjusting piece 6 by the screw clamp 7; it is then moved up to the cutter head 3, and the pillar passes into the recess made in the cut-

ter head, at which time the cutters 8 and 9 give it the required shape, and when connected to the back piece of the chair they form a joint which is represented in a cross section at fig. 2.

Claim.—The arrangement of the sliding table 5, in combination with the cutter head 3 and cutters 8 and 9, furnished with the adjusting piece 6, for holding the pillar to its proper relative position to the cutter head, or equivalent means for making the top of the pillar the desired form and size to fit the dovetail in the chair back.

No. 14,522.—Solon Staples.—*Improved Clamp for Planking Ships.*—Patented March 25, 1856.

The object of this invention is to bend and hold together the inner or outer planks of vessels until properly secured. A represents a board which is to be secured to B.

The inventor says: I do not claim the above described parts separately considered; but I *claim* the combination of the shank *a*, arm *b*, screw *d*, and brace K, with the rigid sliding tie *f*, constructed and arranged substantially as herein described for the purpose specified.

No. 14,676.—H. W. Oliver.—*Improved Floor Clamp.*—Patented April 15, 1856.

The bed plate A being placed upon the joist J, the lever D is turned over, whereby the jaw C will be forced outward against the board K. The bevelled end a^1 of rack E will be forced at the same time under the projection *e*, thereby raising the bar F and pressing the hook *h* firmly against the under side of the beam.

Claim.—The sliding jaw or head C, and the hook *h* attached or fitted to the plate or bed A, and operated by the lever D and rack E, substantially as described for the purpose set forth.

No. 14,307.—Ari Davis and Asahel Davis.—*Dovetailing Machine.*—Patented February 26, 1856.

The carriage B is fitted to the tracks C E and D, and to the carriage is fitted the movable and adjustable slide F, so that it may be slid to any desired position on the top of and with the track D, and secured in such position by the screw G. The slide F is intended to be moved to correspond with and rest upon the track D. The carriage B and its adjustable slide F receive and carry the piece of board W^2 to be dovetailed, they being held down by the hand of the operator while he is pushing the carriage B forwards.

Claim.—The arrangement and operation of the cutter heads *x b* and L, one movable and adjustable with the bar D, which carries it, and the other stationary so as to bevel and form the groove in one end of the wood, and bevel and form the tongue to fit this groove on the opposite end of the wood at one single operation; so as to complete the dove-

tailing of each piece of any desired length, without changing the cutters essentially in the manner and for the purposes fully set forth.

Also, the carriage B, or its mechanical equivalent, and its movable and adjustable slide F which carries the board being dovetailed, and which can be moved and adjusted in conjunction with the bar or way D, and cutters thereon, so as to give any desired length to the board, essentially in the manner and for the purposes set forth.

No. 14,427.—Edwin Wight.—*Improved Dovetailing Machine.*—Patented March 11, 1856.

The boards to be cut are placed between the wedge-shaped blocks T and S; the bar p^1 is then brought down with the cross-bar Q, which bears on the top of the wedge T. Bar p^1 is secured and brought down by means of the set-screw *m*, as shown in fig. 3.

The boards thus confined to the base plate A are submitted to the semi-cylindrical cutter, which is brought to act upon the edges of the series of boards by means of the slides, fig. 2, similar in form to the ordinary slides of machines for planing iron.

The inventor says: I do not claim the exclusive use of revolving and traversing cutters, as they are employed in a variety of machines; but I do *claim* the cutting of dovetails of exactly similar size and form on the edges of a number of boards at one operation, by placing the said boards one upon the other, arranging them in the manner set forth, or any equivalent to the same, and submitting them to the action of revolving and traversing cutters.

No. 15,301.—Lysander A. Orcutt.—*Improved Dovetailing Machine.*—Patented July 8, 1856.

The four slides or chucks K on the pieces J are arranged at such a distance apart as will receive the plank or board on which the dovetails are to be cut, and are secured there by the clamp L. A notched pattern N, having openings in it at such distances apart as is required to have the dovetails, is then placed between M and G, and there secured by set-screws *f*. The variable dog R, being adjusted to the notches in the guide N, enters said notches and holds the work whilst it is being cut. When the dovetail is being cut, the table is secured in a horizontal position by a set-screw *t* and rod *q*; and when the tenon is being cut, collars or stops are placed on said rod and the screw is loosened, said collars being so placed and at such a distance apart as will give an angle corresponding with that of the dovetail; then by rocking the table each way and passing the material to the cutter twice, the tenon is cut.

Claim.—The combination of the double frames or carriages for producing the canting or rocking and the vertical and horizontal motions, for cutting dovetails and tenons or counters.

I also claim the variable dog R and pattern N, for spacing, regulating, and holding the stuff under the action of the cutter, as herein set forth.

No. 15,727.—William M. Bullock.—*Improved Machine for Dressing Felloes.*—Patented September 16, 1856.

The fellies represented in dotted lines are placed upon a suitable bed which moves in an arc of a circle; motion being given to the cutter-head J by means of the wheel C and pinion D, the cutter K, as the head J rotates, dresses the felly. The bearings H of the shaft E are kept stationary by means of a stop L attached to ring F; by raising the latch, the bearing and shaft E can be turned one half the circumference of the wheel C, as represented in fig. 2, and the motion of the cutter-head J will be reversed, thus affording the means of dressing the fellies in the same direction as the grain runs in the wood to be dressed.

Claim.—The rotating ring or band G placed within the stationary ring or band F, the ring or band G having the cutter-head shaft E fitted to it, the shaft E being rotated by the gearing C D, as shown and described, for the purpose specified.

No. 14,987.—A. B. Richmond.—*Improved Machine for Manufacturing Felloes.*—Patented May 27, 1856.

In the saw frame D D there is hung a shaft 24, on which the saw arm F is vibrated. The saw arm F ends in hands, one of which has five slotted fingers, and the other three. The saws G G are adjusted to the desired circle by turning the screws *q q q* and *c*, which moves the nuts 12; and when the desired circle of the saw is thus obtained, the nuts 11 11 are screwed up to 12, holding the saws between them. The saws are then secured on the hand by means of the screws 13.

The platform III moves on slides IX IX. The screws VIII, &c., serve to level it so as to square it with the saw *a*. When the felly is laid on the platform against the adjustable gauge VI, the end from the saw *a* is moved off from IV by the screw VII until it lies at the proper angle, and then, holding it secure with one hand, the operator slides the platform up to the saw *a*, when one end of the felly is cut off at the proper level.

For the purpose of boring, the felly is placed between the adjustable gauges *l l*, on the platform *p p*, and secured by means of button *u*; *n n* are bits with which the holes for the spokes are bored. The bits, being fastened to the sliding pieces *f f*, are pressed against the felly by means of lever *v*. The bits n^1 n^1 operate in a similar manner.

Claim.—The saws, constructed so that they may be adjusted to any required circle by means of the set-screws *g g g g g*, and also constructed as described, with the saw-hand and fingers and slots and set screws combined, or any other construction substantially the same. I do not claim the saws alone, but constructed, and with the aforesaid combination, as described.

2d. The contrivance and construction of platform III, with the combination of gauges and set-screws, as described, for cutting the felly the proper length, or any other substantially the same.

2d. I do not claim the bits driven by hand alone but I claim the combi-

nation described in fig. 4, by which the bits for the spokes and dowel pins are made to move towards the felly at the same or different times, as may be desired, by means of the combination and construction described, or any other substantially the same.

No. 15,445.—G. W. Walton and H. Edgarton.—*Improved Method of turning Ellipsoidal Forms.*—Patented July 29, 1856.

Motion is given to the shaft B by a belt which passes around pulley C on shaft B, and motion is given to the shaft M by a belt which passes around the pulley N. When the teeth of the pinion O gear into the pinion L, the feed rollers K K^1 will be rotated, and the stick R, shown in dotted lines, will be fed into the hollow shaft B; when the teeth of the part pinion O pass out of gear with the rollers K K^1, the stick remains stationary, and the pins *f f*, on the shaft M, act upon the rods P P, and the collar E is moved forward, and the cutters I I^1, one or both, are forced inward by the slides *b b*, act upon the stick R, and cut a handle. By similar successive operations, a number of handles are cut side by side, and the stick of handles is discharged by the rollers Q Q.

Claim.—The feed rollers K K^1 and expanding cutters I I^1, one or more, attached or fitted to the hollow shaft B, when the parts are arranged and operated as shown and described, for the purpose specified.

No. 14,421.—Henry D. Stover and James W. Bicknell—.*Machine for Cutting Irregular Forms.*—Patented March 11, 1856.

It will be seen that the shaft *c*, together with its appendages, will swing about the fulcrum *e e* as the pinion (which gears into the stationary rack *g*) is revolved by means of worm-gearing K J. The parts *l m* J *i* K *h*, are connected to, and move with, the shaft C.

Claim.—Combining the guide *f* with the bearing *e*, substantially as, and for the purpose, set forth; and also combining the cutter head *d* with this guide in such a manner that they shall move up and down together, substantially as specified.

Also, the combination of the cutter-head, arbor, and pivoted bearing *e*, so as to allow the cutting angle of the knives to be varied in relation to the table, substantially as set forth; and also combining these with the mechanism, substantially as described, for varying that angle gradually in the cutting process.

No. 15,859.—Charles Spofford.—*Improved Machine for Cutting Irregular Forms.*—Patented October 7, 1856.

This invention consists in the application of a horizontal cutter-head A in combination with two vertical tables G H, to which the guide-heads B and C are attached instead of using two vertical cutter heads operating on a horizontal table. The work can be shifted from

one table to the other as circumstances may require, by means of the vibratory spring-presser I vibrating on the fulcra *d*, said presser being operated as described in the claims.

The inventor says: I do not claim the invention of a rotary cutter cylinder. Nor do I claim combining knives in any manner with a rotary cutter-head or frame to hold said knives so that said head or any part of it may serve as a guide to the form or pattern carrying a material to be dressed.

I *claim* the combination of one rotary cutter, two guide-heads B and C, and two tables G H, arranged as described.

I also claim the combination of a vibratory spring-presser I with a rotary cutter-stock A and two tables G H, the said presser being made to operate with respect to the cutter-stock and tables, and either guide B C, as specified.

I also claim the combination of mechanism for moving the vibratory spring-presser and its spring towards either of the tables and locking the shaft to the spring, the same consisting of the arm M, the two turning bearers R S, and the treadle or lever N, connected to the bearers by pitmen O P, as described.

And in combination with the mechanism for moving the vibratory presser and its spring towards either of the tables, and locking the shaft to the spring, I claim the auxiliary treadle T applied to the main treadle, and supported by a swinging bar, substantially as explained.

No. 15,153.—John Tear.—*Improved Method of Operating Cutters in their Heads for Irregular Forms.*—Patented June 17, 1856.

When the cam N is in motion, the end *r* of the lever M is moved sidewise, and the upper end assumes a similar motion, thereby imparting to the knives K a slow movement which is reversed in each of the knives, and by this movement the knives slowly approach or recede from each other, at the same time that the cylinder I is revolving with a rapid motion imparted to it from pulley P; this provides the means of cutting two sides of the spoke tapering at one operation. The relative lateral distances of the knives K can be regulated in the following manner: When the lever S is turned, the arms R slide in the standards G and move the lever M and knife K in the same direction; the lever S can then be secured by inserting a pin into one of the holes *t* of the sliding-box T.

The inventor says: I am aware that a divided or sectional cylinder has been used, and that these sections have been operated by cams to give them lateral and vertical motion; these I do not claim.

But I *claim* the use of a cutter-head, in which the knives or cutters are caused to traverse during the rotation of the cylinder, for the purpose of adapting themselves to the shape of the thing to be cut by them.

No. 15,327.—P. C. Cambridge, jr.—*Improved Method of Turning Ornamental Forms.*—Patented July 15, 1856.

The stuff S is centred between the heads of an ordinary turning-lathe, and the guides or ways A A serve as the bed of the lathe. As the stuff S is rotated, the carriage B is moved. The cutters G rough off the work, and the sliding-carriage B is moved back and forth by hand, the tools Q and R acting alternately upon the stuff, and cutting alternately beads *e* and smooth cylindrical portions *f*. As the tools Q and R cut, the carriage B is kept stationary in consequence of the pawl D catching into the notched sides of the bar C. The pawl D is thrown out of the notches by operating the lever E; set-screws *g* are placed underneath the carriage J on carriage B, by which its length of stroke is regulated. The collar I supports the stuff S, or holds it firm, preventing all tremor, while the stuff is being operated upon.

Claim.—The sliding-carriage J, with tools Q R attached to it, as shown; the carriage J being fitted transversely on a carriage B, substantially as shown, for the purpose specified.

Further: the carriage J, in combination with the collar I and cutters G G, when the above parts are placed on the carriage B, and operating as described.

Also, the polygonal notched bar or gauge rack C, arranged as shown, by which the movement of the carriage B is regulated according to the character or nature of the work to be done, and the stuff beaded in the desired manner.

No. 15,196.—H. E. Salisbury.—*Improved Method of Turning Tapering Forms.*—Patented June 24, 1856.

The centre-piece being pushed against the end of the timber, and the screw 2 turned to hold it in its place, motion is given to the machine. This will revolve the cutters *c*, and a gear-belt is extended from the mandrel to the pulley R on shaft J, which gives motion to the same; as it revolves, the worm-screw operates on gear U, which gives motion to the endless-chain belt, to which sliding-rod J is attached, by means of clamp 1, and to which is attached the sliding-centre by means of clamp 2, and as the timber is fed to the cutters the sliding-centre is moved out.

As the cam Y operates on the lever Z, it is raised or depressed. As it rises, the face-plate slides towards the cutters, causing the radiating arms *b* to pass through slots c^3, thus closing the cutters, and making them to conform to the shape of the timber. When the irregularities of the cam depress the lever, the face-plate E is drawn back and the arms are drawn out of the slots, thus opening the cutters, so as to conform to the unevenness of the timber. When the timber has passed through the mandrel, the sliding-centre falls out, as shown in dotted lines, fig. 3; and if the timber is very long, the weight Z is allowed to press on the wheel to which it is attached, which will bring the friction-rollers M to bear on it, and which will act as a rest to steady and support it.

The inventor says: I do not claim causing cutters to advance and

recede to and from the piece being turned, irrespective of the specific arrangement; but I *claim* the manner herein described of operating the revolving cutters, namely, by means of cam Y, lever Z, movable face-plate E, with radiating arm *b* passing through slots c^1, with slides *d* on revolving face-plate F, for the purpose of opening and closing the cutters, and holding the timber stationary.

I also claim the movable centre-piece, operating as described and for set forth.

the purposes set forth, in combination with the feed motion, as herein

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No. 15,556.—Joel Bryant.—*Carpenters' Gauges.*—Patented August 19, 1856.

The marking points are provided with screw-threads, which work in corresponding screw-threads in the hollow holders *g* and *c*, so that by turning said holders the markers may be screwed in or out at pleasure. The holder *g* is stationary, and provided with a groove *m* and shoulder *n* to receive the sides of a sliding-catch *i*, which thus retains the holder *g* in its place, but permits to turn it by means of its handle. The holder *c* which is attached to the arms *a* and *b* can be made to move by operating the screw *h*, and thus this gauge can be used as a mortising gauge or as a single gauge, by using one or two markers at a time.

Claim.—Point-holders, or holders for the points, markers, and cutters of the gauges, irrespective of the kind and form of gauges, or instruments equivalent thereto, constructed and operated as described.

No. 14,753.—George W. Holmes, assignor to Jarvis C. Marble.—*Improved Hoop Machine.*—Patented April 22, 1856.

The inventor says: By constructing the saw-dishing, and arranging the pressure-rollers with respect to it, I am not only enabled to saw bent sticks, but I cut each hoop with a lateral bevel, such as will cause it, when bent around in a circle, to be frusto-conical on its inner sawed surface, and thus enable it to fit closely against the taper of the barrel.

Claim.—The arrangement and combination of the pressure-rollers F G, the saw D, and the stand-guard O, so as to operate together, the said rollers being pressed towards the saw with variable degrees of pressure.

And under the arrangement of the saw and pressure-rollers as described, I claim making the saw-dishing or concave-convex, by which advantages are gained, as stated.

No. 14,833.—Joseph Sawyer and Sylvester Sawyer.—*Improved Hoop Machine.*—Patented May 6, 1856.

The hoop, as it leaves the feed-rolls H and I, is borne up to the cutter-head C by the pressure-roll L hung in the frame M, which pivots round the axis of the feed-roll H; the roll L is brought up to its work by the spring N, one end of which is attached to its carrying-frame M;

the latter is thus brought up against the stiff spring O, which serves as a stop to the further motion of the pressure-roll L.

The finished portion of the hoop is caused to bear against the rest D; the pressure-roll L, while it keeps the hoop steadily up to the rest and the cutters, yields also to permit the passage of knots upon the outer surface of the hoop.

When the hand-lever T is forced in the direction of the arrow, it bears at *c* upon the stiff-spring stop O, by which means this spring is caused to yield, and the roll L is allowed to force the hoop against the cutter; at the same time the lever T presses at *d* against the feed-roll I, and causes it to yield, and thereby permit the end of the hoop to be borne over towards the cutters.

Claim.—The within described combination of the rest D and the pressure-roll L with the hollow-faced cutter-head C, operating in the manner substantially as set forth.

2d. We claim the method herein described of tapering the hoop for the lap, by means of the lever T and spring-stop O, operating in the manner and for the purpose set forth.

No. 15,780.—Joseph Sawyer and Sylvester Sawyer.—*Improved Hoop Machine.*—Patented September 23, 1856.

The hoop-pole, during the process of splitting, passes between the stationary rollers C D and the movable rollers E F. The knife *m* is secured to the carriage K, which is kept steady by means of rack *i*, which can be adjusted by means of a pinion meshing into said rack. The carriage K is hung at one end upon a rod *n*, so as to permit it to slide a short distance to either side.

Claim.—The methods described of hanging the knife and connecting it with the feeding-rolls, for the purpose of retaining it midway between the rolls, and parallel with the direction of the hoop-pole.

No. 15,865.—William B. Wood.—*Improved Hoop Machine.*—Patented October 7, 1856.

The hoop-poles are fed by the feeding-rolls B to the stationary knife C, by which they are split through the centre; the two halves are each then directed by the stationary guides *b* past the edge of the spring guides *c*, against which the hoops are pressed by the rolls *d*. The interior surface of the hoop is then shaved by the cutters *f* of the revolving cylinders D. During this operation, the planed surfaces of the hoops are pressed up against the stationary guides *g* by the rolls *h*. The hoop is then reduced to a uniform thickness by the revolving cutters E, during which operation it is held firmly to the rear of the guide *g* by the spring guides *k*. The hoops are then drawn out of the machine by the rolls F.

The inventor says: I do not claim splitting hoop-poles by forcing them against the edge of a stationary knife. Nor do I claim shaving them by means of revolving cutters. Neither do I claim any of the in-

dividual devices employed, nor their combinations. But I *claim* the peculiar arrangement of the several parts of the described machine, operating in the manner specified, for the purpose of splitting the poles and shaving the hoops at one operation, as set forth.

No. 15,768.—Daniel Lamson.—*Improved Machine for Notching Hoops.*—Patented September 23, 1856.

The hoop, represented in dotted lines, is laid flatwise upon the plate D, the knife E being raised; and the knife is brought down upon the hoop by depressing the treadle attached to rod C, the knife cutting an oblique notch of the required form in the hoop.

Claim.—The knife E attached to the reciprocating frame B, in combination with the inclined plate D attached to the frame A, substantially as described, for the purpose specified.

No. 16,225.—Clark H. Brown.—*Improved Method of Planing and Tapering Wooden Hoops.*—Patented December 16, 1856.

The bolt represented in dotted lines is placed on the carriage B; the carriage is then moved along in the direction of the arrow, and the planer G makes a deep cut at its commencement; but the arm *i* immediately strikes against the projection *f*, and moves the lever F, and the slide E and planer G are gradually thrown back a certain distance. The saw C now enters the bolt and cuts a strip of the necessary width from it. As the outer end of the bolt approaches the planer, and at the proper point, the pendant *g* strikes the projection *f* on the opposite end of the lever F, and the planer is gradually moved inwards so as to cut the outer end of the bolt in taper form.

The inventor says: I do not claim the circular saw and rotary planer, for they have been previously used for analogous purposes.

But I *claim* the combination of the saw C and the adjustable or sliding planer G, operated or adjusted by the movement of the carriage B, through the medium of the lever F and the pendant *g* and arm *i* on the carriage B, substantially as shown and described, for the purpose set forth.

No. 14,871.—William D. Hooker.—*Improved Method of Securing Knives to Cutter-Heads.*—Patented May 13, 1856.

By turning the rod E, the wedge D will be forced between the shanks *a a*, thereby securing the cutters in the head.

The inventor says: I do not claim operating a wedge by a screw, it having been done before.

But I *claim* the cutter-head A, the shanks *a a* of the cutters, the wedge D, the screw-rod E, the whole in combination, arranged substantially as described, and for the purpose specified.

No. 15,045.—Josiah Mumford.—*Improvement in Revolving Last-Holders.*—Patented June 3, 1856.

By this arrangement, the operator is enabled to bring the lasts M and N into any desired position by turning the plate C and by turning the braces E on their respective bolts *d*.

The inventor says: I am aware that a revolving last-holder has been patented; this I do not claim; nor do I claim arranging two revolving arms on one standard, as this has been done.

But I *claim* the so arranging of the two arms D, carrying each a last M and N to one revolving plate C having two inclined planes upon it, that both arms shall revolve at once; and when the last on one shall be up, the other shall be down, and *vice versa*; for the purpose of bringing one last into convenient position for the operator, and removing the other one entirely out of his way.

No. 14,647.—Andrew J. Barnhart.—*Improvement in Securing and Releasing Blocks of Lasts.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and engraving.

The inventor says: I do not claim attaching the block B to the last A by means of a spring catch, irrespective of the arrangement of the catch, as herein shown. But I *claim* the fastening or catch C, arranged substantially as shown, so that the insertion of the lever or last hook will disengage it, and allow the block to be freely removed.

No. 14,126.—John L. Brown, assignor to Himself and Charles Learned.—*Lath Machine.*—Patented January 15, 1856.

The plank *p* is placed in the vertical frame F, and is supported underneath by the rest *m*. As the shaft E revolves, the knife frame B reciprocates, together with the knives *f* and the rest *m*, which are attached to said frame. The knife cuts off the lath; and as the rest *m* moves from beneath the plank, the lath falls to the ground, and the plank is held upon the upper face of the knife, which, in its turn, (when the opposite movement of B takes place,) slips from under the plank at the time the rest *m* reaches again the position shown in fig. 2, when the plank falls upon the rest and is ready for the next cut.

The inventor says: Disclaiming reciprocating knives for cutting laths, without regard to number and direction of movement, I *claim* the vertical guide frame F, in combination with the reciprocating rest *m*, constructed, arranged, and operating substantially as and for the purposes specified.

No. 14,499.—Jesse Gilman.—*Improved Lath Machine.*—Patented March 25, 1856.

When the carriage W arrives at a certain point, a projection a^1 will strike a pin b^1 on the rod *f*, causing the motion of f^1 together with the

pulley X and the cams E E. The cams operate the lever G, and throw the clutch H in gear with the pulley J, thus reversing the rotation of shaft I and the motion of the carriage W, until the projection a^1 str kes against the projection *i*.

Claim.—The clutch H, operated by or through the medium of the lever G and cams E E, in combination with the rods ff^1, carriage W, and pulleys V X, the pulleys being connected respectively with the carriage W and rod f^1 by the cords *c h*, substantially as described for the purpose specified.

No. 14,027.—Thomas R. Markillie.—*Improved Bed for Lath-Sawing Machines.*—Patented January 1, 1856.

This invention is designated to facilitate the setting and effect the supporting of the log during the operation, so that it may traverse without jar or movement, and without binding or pressing upon the horizontal saw. The log is made to rest upon the bed *m m* of the carriage B, and carriage C being drawn over it, the dogs E E are secured to its ends by means of screws *d d*, the carriage B at this time being at the right of the vertical saws F; the inner vertical face of the log is made to rest against the face *n* of guide *i*. The log being thus set, the carriage B is made to traverse over the saws G and F, by which operation the first cut is effected. The movement of the carriage is then reversed; and when weight *p* strikes stud *q*, the plate *b* is revolved outward, permitting carriage C to be moved by weight *a*, until the vertical face of the cut comes in contact with face *n* of guide *i*, the horizontal face of the cut passing upon the edge *r* of said guide, and thus causing the log to rest upon bed *m m* and the guide *i*, plate *b* falling into position to hold carriage C.

Claim.—Having thus described my invention, and the operation thereof, I disclaim the employment of the two systems of saws perpendicular to each other, such forming no part of my invention.

What I claim is, the combination of the bed M M with the longitudinal bearing guide I I, arranged and operating as and for the purposes set forth.

Also, the construction of the conformable dogs E, operating as and for the purposes set forth.

No. 14,578.—H. C. Spalding.—*Improved Lathe.*—Patented April 1, 1856.

This lathe for turning polygonal forms operates as follows:

The belt-shipper N is shoved into the box O^1 till the hooked lever Q^1 catches into a hole therein, and retains the belt-shipper in proper position. The reversing gear moves the carriage F, together with the stick to be cut, underneath the cutters E, which cut one side of the stick; the stick is prevented from vibrating by the jaws *s s*. When the carriage has reached the end of its forward motion, one of the projections *z* actuates the lever A^1, and the belt-shipper Z throws the belt upon the other pulley of the reversing gear, and the carriage F returns

backward. Before the carriage has completed its return motion, the upper end of the arm K^1 comes in contact with a projecting arm A^2 which forces the pawl a^1 underneath the end of the spring L^1, whereby the pin z is raised from one of the holes w in the hub J^1, causing the spring M^1 to draw the lower end of the arm K^1 back to its original position, as the carriage again moves forward, and the stick is turned the required distance between its centres by the pawl b^1, so that an uncut side of the stick is presented to the action of the cutters.

Claim.—1st. Attaching the cutters E to the cutter-heads D by having the shanks b of said cutters fitted in taper grooves a, which are made in the sides of the cutter-heads, the inner ends of the grooves being wider than the outer ends, to permit the proper adjustment of the cutters.

2d. The shaft T, when arranged as herein shown, so that it will rise and fall curvilinearly, and be at equal distances from the arbor or shaft C at any point of its movement, so that power may be applied to the gearing which operates the adjustable and reciprocating carriage F from the stationary arbor or shaft C, without changing the lengths of the driving-belts.

3d. Holding or securing the sticks to be operated upon by means of the jaws s s, operated by the grooved drum p, lever G^1, and plates u w, as described.

4th. The hub J^1, arm K^1, with pawls a^1 b^1 attached, and operated as shown, for the purpose of turning the sticks the requisite distance between the centres at each movement of the carriage, so that the sticks may be cut with any desired number of sides.

5th. Arranging the belt-shipper N^1, as shown, viz: with a hooked lever Q^1, and pendent lever R^1, and spring P^1, and having a projecting pin f^1 attached to the side of the hub J^1, so that the driving-belt of the machine will be thrown off the driving-pulley W at each entire revolution of the hub J^1, so that the finished work may be removed from the machine, and fresh sticks placed between the centres.

No. 14,787.—Albert H. Brown, assignor to Tingley and Viele.—*Improved Lathe.*—Patented April 29, 1856.

The two cutter-stocks D^1 D^2 are pivoted against the rest A. They are in the bell-crank form, the inner ends holding the cutters E^1 E^2, and the outer ends being attached to the rods G^1 G^2, which are hooked under the pattern H. The movements of the rods G^1 G^2, rising and falling upon the uneven surface of the pattern H, will give a similar motion to the cutters, and produce the desired form in the article to be turned.

Claim.—The form and arrangement of the cutter-stocks with the cutting tools attached, so as to partake of the curvilinear motion of the stock, and pivoting them upon the slide-rest; in combination with the apparatus for transferring the lines of the pattern by the motion of the stocks to the cutters, so as to produce a turned surface, of which the edge of the pattern is a sectional representation, substantially as set forth and described.

No. 14,941.—Milton Roberts, assignor to Milton Roberts, Isaac Roberts, and Isaac N. Felch.—*Improved Lathe Attachment for Turning Irregular Forms.*—Patented May 20, 1856.

The movable head A is attached to a common lathe-bench, with a slide B moving between the guides C; this transverse motion is produced by the crank G G, the cutter-slide being loosely attached to the bar F by pins, so that the head B can slide horizontally along the bar F. The horizontal motion is produced by two inclined planes E E, which act alternately upon the teeth of rack D.

Claim.—Automatic lathe-attachment for turning figured wood-work, substantially a transverse and longitudinal movement produced by cranks G G and inclined planes E E, or their equivalents, and tooth-rack D.

No. 16,108.—James Anderson, John McLaren, and John Bryant.—*Improved Lathe for Cutting Fluted Mouldings.*—Patented November 25, 1856.

By turning the shaft J back and forth a reciprocating motion is given the leg E, and the leg is turned a certain distance at each vibration of the carriage B. One set of the revolving cutters *q* cut half a flute, and the other set of cutters cut the opposite side of the flute; and as the two sets of cutters rotate in reverse directions, both sets will cut with the grain of the wood, and the flutes will be cut in spiral form upon the leg E, owing to the rotating motion given it by lever *h* working in the inclined slot *i*. When one slot is cut, the leg E is turned around a certain distance and attached to the pinion *f* by pin f^1.

Claim.—1st. The adjustable rotating cutters *q q* attached to shafts *p p*, which are fitted in frames *o o*, the frames being fitted and working in pendent guides *n n* attached to the adjustable block G, substantially as described for the purpose specified.

2d. Placing the leg E between centres which are attached to a swinging frame C fitted on a reciprocating carriage B, the leg being turned or rotated between its centres as the carriage moves, by means of the inclined slot *i* in the ledge or plate *j*, and the lever *h* and gearing *f g*, as described.

No. 14,632.—Michael Neckermann.—*Chuck for Lathes.*—Patented April 8, 1856.

By turning the rim E, by means of the rod *l*, the toothed rim F may be thrown either in or out of gear with the pinions *f*. When the toothed rim F is in gear with the pinions *f*, all of said pinions will be turned by turning either of the screws D, and the jaws B will consequently be moved simultaneously towards or from the centre of the face-plate.

The inventor says: I do not claim the bevelled toothed rim F, nor the pinions *f* on the screws D, by which the jaws B are operated, for this device has been previously used.

But I *claim* the annular rim E, having inclined projections *j* attached to it, the projections *j* fitting or working over projections *i* on the back of the groove *h*, the toothed rim F being placed over the rim E, the above parts being arranged as shown for the purpose set forth.

No. 14,899.—Milton Roberts, assignor to Milton Roberts and Isaac N. Felch.—*Improved Cutter-Head for Lathes.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The eccentric insertion of the tenon E of the cutter-head B in the mandrel A, to produce an eccentric motion in throwing out the edge of the cutters.

No. 16,192.—Lemuel Smith.—*Improvement in Lathes for Irregular Forms.*—Patented December 9, 1856.

The stuff C is centred between the two heads B, a jaw F being at each side of it; and as the stuff B is rotated, the cutter G acts upon it. As the carriage E is drawn along, the jaws F expand and contract, the action of spring *c*, pressing them against the stuff, which will be turned, corresponding in form to pattern H.

Claim.—The two expanding jaws F F, placed on the carriage E, which works on the bed A of the turning lathe, in combination with the pattern H, the cutter G being attached to one of the jaws, and the whole arranged as shown and described, for the purpose specified.

No. 16,105.—Josiah B. Pomroy.—*Improved Device for Governing the Parallel Yielding of Lumber Feeding Rollers.*—Patented November 18, 1856.

The boards to be resawed are inserted between the vertical feed-rollers, which rest at their bearings on the horizontal carriages N. These carriages are connected to rod T by the parallel arms S, and the pressure of spring tends to draw said arms in a direction parallel to rod T, and thus to press the feed-rollers tightly against the boards; by pressing on the knob *x*, the carriages N are separated, and free room is thus allowed for inserting or taking out boards.

The inventor says: I do not claim in general causing the feeding-rollers to yield and adapt themselves to the shape of the board so as to remain always in parallel positions; but I *claim* the arrangement and combination of the parallel arm S S, central guiding rod T, and spring *u*, in connexion with the yielding feeding rollers, mounted on sliding carriages, substantially in the manner and for the purposes specified.

No. 15,053.—William P. Wood, assignor to Samuel D. Vaughan and William P. Wood.—*Improved Mitre Box.*—Patented June 3, 1856.

The box is adjusted to cut a joint of any angle, by moving the sliding carriage D towards or from the centre *a*, until the arms C (which are thus made to rotate in consequence of the pins *e e* of the sliding carriage playing in the grooves *s s* of the arms C) are parallel with the proper lines to cut the required joint, at which point they are secured by the set-screws *g g*.

Claim.—The arms C, when operated in the manner substantially as and for the purposes described.

No. 16,020.—Joseph R. Perry.—*Improved Joint for Uniting a Mortising Chisel to its Mandrel.*—Patented November 4, 1856.

This invention consists in securing the revolving chisel socket J to the cross-head H of a mortising machine, by turning corresponding grooves on the inner circumference of the cross-head H and outer circumference of the socket J, and by then fitting both parts together and pouring metal into said groove through a passage *a* in the cross-head H, thus forming a complete swivel.

Claim.—Securing the revolving chisel socket J to the cross-head or cap H, by grooving both in the manner described, and filling the annular space thus created with a metallic composition, as specified.

No. 14,071.—William Stoddard.—*Mortising Machine.*—Patented January 8, 1856.

The nature and object of this improvement will be understood from the claims and engravings.

The cutter-stock E receives a reciprocating motion by means of a crank and pitman H.

Claim.—1st. The movable cutting-spurs P P, or their mechanical equivalents, for forming or cutting the heads or ends of the mortise, and without the machine being confined to the timber being mortised, essentially in the manner and for the purposes set forth.

2d. I claim the double inverted feed-rack X, in combination with the ratchet-nut G^2, which is fixed to the screw Y, or their mechanical equivalents, so that this screw can be moved by the rack X and ratchet-nut G^2, to feed down the spurs P P and *a a a a*, and reciprocating cutter B^2, so as to form the mortise in the wood, essentially in the manner and for the purpose set forth.

No. 14,106.—J. A. Merriman.—*Mortising Machine.*—Patented January 15, 1856.

The cutter K is attached to the plate I, and the chisels P P are attached to the plate O. The plate I, with cutter K, receives a hori-

zontal reciprocating motion from the revolving shaft N by reason of the pin L working in the slot *k* of the plate I. The plate O, with the chisels, receives a vertical reciprocating motion by means of pin L working in the slot *m* of plate O. The chisels cut the ends of the mortise, while the cutter takes out the wood between, the chisels rising and falling at the proper times so as not to interfere with the action of the cutter.

The inventor says: I do not claim mortising by means of two chisels P P and a horizontal reciprocating cutter K, irrespective of the peculiar means employed for operating said chisels and cutter, for they have been previously used. But what I do *claim* as new, and desire to secure by letters patent, is, operating the chisels P P and cutter K by means of the reciprocating plates I O attached to a plate H, and provided with slots *k m*, as shown, in which a pin, attached to the wrist M of a shaft N, works substantially as shown, for the purpose specified.

No. 14,564.—Edward Joslin.—*Improved Mortising Machine.*—Patented April 1, 1856.

The carriage B is moved downward by the foot-treadle G, which operates upon the longer arm of the tri-armed sectoral lever K. The other arms *h* and *g* operate upon the two wooden springs M and L, which raise the carriage B after each depression of the treadle G.

The inventor says: I do not claim the application of a spring to the tool-carriage in order to lift it; but I *claim* combining or arranging, as specified, with the tri-armed sectoral lever K and the post or frame of the tool-carriage, two wooden springs L M and a connecting-rod O, and so that one spring may be separated by draught, and the other by pressure, when said lever is forced downward, as explained, the same effecting advantages as set forth.

No. 15,467.—Thomas R. Bailey.—*Improved Mortising Machine.*—Patented August 5, 1856.

The mandrel H is mounted in the bearings I and J on the spring-plates L and M; the bearing I can be made to turn on the pin *c*, and the bearing J can be made to vibrate on the plate M. As the mandrel H is rotated, a rotary motion is given to the cutter *n*, and also a lateral vibrating motion, the latter movement being given by the screw *f*, worm-wheel *g*, eccentric *h*, pitman N, and bent-lever O. The mandrel H is shoved towards the hub D, and the cutter *n* enters the hub and cuts at right-angles to its axis; and as it vibrates laterally, the mortises will be cut the proper length, and the ends of the mortises will be cut of taper-form, because the bearing I of the mandrel works on the pivot *c*. The length of the mortise is regulated by adjusting the connexion of the pitman N with the arm *j* of lever O.

The inventor says: I do not claim a rotating and vibrating mandrel, irrespective of the construction and arrangement shown.

But I *claim* the mandrel H, fitted in bearings I J, attached to sliding-plates L M, one of the bearings I being pivoted to the plate L, and the other bearing J allowed to slide on the other plate M, the mandrel H being vibrated laterally by the screw *f*, worm-wheel *g*, eccentric *h*, pitman N, and bent-lever O, the whole being arranged as shown, for the purpose set forth.

No. 14,160.—Hazard Knowles.—*Mortising Tool.*—Patented January 29, 1856.

A is the chisel-plate, worked by a cross-head C sliding in ways W W.

The inventor says: I do not wish to be understood as making claim broadly to an instrument with teeth upon one or both edges, nor to the making of an instrument with teeth along the edge or edges, on a line inclined to the line of motion of such instrument; but what I do *claim* as my invention, and desire to secure by letters patent, is, combining in one instrument a series of chisels of the width required to give the desired form to the wood to be cut, when the said chisels are arranged in succession on a line oblique to the line of motion of the entire series, and with gullets interposed to receive and hold the wood cut by each chisel, until it passes through the thickness of the material to be cut, substantially as described; by which combination and arrangement the desired form is given at one operation, by the breadth of the chisels and by the inclination of the series of chisels, as to sustain the under surface of the wood outside of the form intended to be cut, and to act as resisting-shears, in conjunction with the chisels, which finish the cutting of the desired form, substantially as described.

No. 14,454.—A. C. Hitchcock and C. H. Amidon.—*Improved Mortising Tool.*—Patented March 18, 1856.

The bit C is rotated within the bar or chisel A. It enters the wood, and in cutting takes off small chips. The chips pass out of the bar A through the slot C. The chisel A is forced into the wood, the cutting edges following the wood and making a rectangular hole.

The inventors say: We do not claim a hollow chisel having a bit placed within it, irrespective of the form of bit used and the slotted chisel; but we *claim* the combination of the bit C, constructed as described, with the hollow slotted chisel A, for the purpose set forth.

No. 16,197.—John J. Westerfield.—*Improved Method of Cutting Carved Mouldings.*—Patented December 9, 1856.

The stuff T to be cut is sawed out to the proper width and thickness, and secured to the edge of the bed N; and motion being given to the shaft B, the cutter-head S is rotated, and the bed N and frame M are turned, so that the stuff T is passed underneath the cutters which cut the mouldings.

The inventor says: I do not claim the elliptical and oval bed V, connected by the trammel W to the rotating bed U, for this is an old and well known device for cutting and drawing or describing ovals.

But I *claim* the inclined bed N, either of quadrant, circular, or elliptical form, and the conical head S, provided with curved cutters *f*, arranged and operating conjointly, as shown, for the purpose specified.

No. 14,302.—Andrew Blaikie and Walter Clark.—*Improved Pitman.*—Patented February 26, 1856.

The object of this invention is to construct a pitman of great strength and lightness.

The inventors say: We do not claim as our invention bushes C C, straps D D, gibs E E, keys F F, or bolts K K; what we do *claim* is the exclusive application of the hollow rod or tube A, and the combination therewith of the wood B, bushes C C, and straps D D, gibs EE, keys F F, and bolts K K, in the manner and for the purpose substantially as described and shown.

No. 14,436.—Lewis C. Ashley.—*Improved Bench Plane.*—Patented March 18, 1856.

The nature of this invention will be understood from the claim and engravings.

The inventor says: I do not broadly claim combining a metallic throat-piece with a bench-plane in such a manner that the discharging aperture for the shavings shall not be enlarged or rendered imperfect by the wearing away of the plane-stock.

I *claim* combining a metallic throat-piece D with a plane-stock A in a manner independent of the plane-iron B, substantially as herein described, to keep the mouth of the throat of the plane perfect as the plane-stock shall wear away.

No. 14,979.—Thomas D. Worrall.—*Improved Method of Securing Plane-Bits.*—Patented May 27, 1856.

By turning the rod E so as to cause the screw C^1 to enter the clamp D, the said clamp may be drawn down closely upon the plane-iron B, so as to confine it firmly in the throat C of the stock A.

The inventor says: I do not claim merely holding the plane or cutter in place in its throat by a wedge, screw, or equivalent device forced into the throat and across it, and against the plane-iron.

But I *claim* the arrangement of the clamp D and the screw-rod E, with respect to the plane-cutter and its stock.

No. 14,228.—C. H. Denison.—*Rotary Planer for Felloes.*—Patented February 12, 1856.

The cutter-bar X attached to vertical shaft W is provided with cutters at each end; a belt passes round shaft W to give it the required

rotary motion. The frame U has a horizontal cylindrical cutter-head *e* within it, said cutter-head being rotated by a belt *f;* the cutter-frames U and T can be raised or lowered by screw-rods *h h* and *d*; the felloes Y Y, as the bed C rotates, pass underneath the cutter-bar X and leave their upper surfaces roughed off, and are smoothed by the cutter-head *e* by giving the bed C a reverse movement.

The inventor says: I do not claim the cutter-head *e*, nor the cutter-bar X, for both have been previously used.

But I *claim* the combination of the rotating bed C, cutter-head *e*, and cutter-bar X, arranged substantially as shown and described, for the purpose specified.

No. 14,363.—Ebenezer Mathers.—*Improved Bench-Planes.*—Patented March 4, 1856.

The stock consists of two pieces A^1 and B^1, provided with a metal cap B flanged on each side; D is the set-screw for tightening the bit C. This plane is not liable to choke, as there is nothing to obstruct the shavings; and the bit can be made as wide as the stock.

Claim.—The construction of bench-planes with the stock in two pieces, connected by a metal cap, as above set forth substantially.

No. 16,309.—Thomas D. Worrall.—*Improved Method of Adjusting the Bits of Carpenters' Planes.*—Patented December 23, 1856.

The plane-iron B can be regulated by turning pinion H, which is set on shaft I, within the clamp D, which latter can be adjusted by means of screw G.

Claim.—The arrangement of the rack and pinion and the clamp, so that, while the pinion is placed within the clamp, the rear or dovetailed sides of the rack-bar shall serve as bearings for the clamp to work against.

No. 14,423.—John B. Thomas.—*Improved Plane-Stock.*—Patented March 11, 1856.

The case 1 serves to hold the glass face 3 to the stock 4 of the plane. Glass is used for the purpose of producing a smooth and durable face.

Claim.—The glass face 3 combined with the case or ferrule 1, or its equivalent, substantially as and for the purposes set forth in the foregoing specification.

No. 16,163.—Edwin Jones.—*Improvement on the Bramah Planing-Wheel.*—Patented December 2, 1856.

This invention consists in the application of a conical wheel A, provided at its under side with cutting blades, for the purpose of planing the surfaces of clapboards or other articles. The wheel is set upon

an inclined shaft E, which can be adjusted in movable bearings *a*. Into a portion of its hub projecting beneath the wheel A are secured the knives M, arranged so as to edge the clapboards; and thus the articles have their surfaces dressed off and their edges jointed at a single operation.

Claim.—Providing the planing wheel with knives for edging or jointing the articles, when arranged as a single instrument, and operating substantially in the manner and for the purpose specified.

No. 14,604.—A. W. Fox.—*Improved Machine for Planing Felloes.*—Patented April 8, 1856.

A curved bar R, concentric with the motion of the carriage A, has a cam *k* at one end which disengages the lever N from the notch *l* when the feeding motion is nearly completed. The side of the carriage then pushes said lever over to notch *n*, thereby disengaging the pinion *g*, and throwing the pinion *f* into gear. When the return movement of the carriage is nearly completed, the shoulder *j* strikes the lever N and moves it along till it springs into the middle notch *m*, thereby disengaging both the pinions *f* and *g* from the crown-wheel M. Figure 3 represents the clamping apparatus. The cam G is so shaped that when the lever *t* is but partially raised toward a vertical position, the spring *u* will force it up the remaining distance. As the carriage A moves, the arm L will pass the spring *p*; but when the carriage returns, the said spring will strike the arm L, lift arm O, and raise the cam lever *t*. The felloes, after being thus disengaged from the clamp, are thrown from the machine by the operation of the spring *r* and arm S, in combination with the arm T, projection U, and friction-roller S.

Claim.—The arrangement of the movable pinions *f g*, gearing respectively into the series of cogs *h i* on the crown-wheel M, in combination with the device for gearing and ungearing said pinions at the proper moments, whereby the carriage is automatically fed along slowly, then returned at a more rapid rate, and finally stopped, while the cutters continue to revolve with uniform motion.

I also claim the combination of the clamping apparatus with the lever arms O L and spring *p*, for the purpose of automatically releasing the felloes.

I also claim the device for throwing the felloes from the machine, arranged and operating as herein described.

No. 14,455.—Daniel N. Hurlbut.—*Improved Arrangement of Rotary Planing-Knives.*—Patented March 18, 1856.

The cutters B are placed on the rear side of the rim of the wheel, and are fastened by means of wedges.

Claim.—The arrangement of the cutters and manner of securing them to the cutter-rim of the wheel, substantially as set forth and described.

No. 14,880.—Cyrus B. Morse.—*Improved Planing Machine.*—Patented May 13, 1856.

Any motion given to the cutter cylinder produces a simultaneous longitudinal movement of bed D by rocking lever connexion *c*, of arms *a* and bed D, so as to preserve to edge *l* of bed D and cutter edges the same relative position for all adjustments of the cutter cylinder.

The board is carried forward by rollers B B^1 without bending, and as it passes from over edge *l* of bed D it is met by and receives the action of the cutters directly in front of the support given by said bed. As the cut is made, any disposition to tear the stuff is counteracted by the cutting edge *l*, which severs the chip instantly. During the passage of the board through the machine it is kept flat upon the bed by the line-plate F, the tilt of which about its own axis prevents any inequality of thickness of the board from interfering with its operation.

The inventor says: I do not limit myself to the precise mechanical devices herein set forth, nor to the exact combination and arrangement of the same, so long as the object is obtained without changing the principle of operation.

Claim.—1st. The combination of the following mechanical elements: Planing cylinder C, vibrating arms *a a*, line-plate F, beds or rests D E, and weighted levers G, or their equivalents, when arranged or combined for reducing a board to an equal thickness without beading the same.

2d. Making the edge *l* of the bed D a cutting instrument, and giving said bed or rest a longitudinal movement, simultaneous with the swinging back or forward of the cylinder, so that the edges of the cutters on the cylinder will preserve the same relative position with respect to the cutting edge of the bed in all positions which the said cylinder may occupy.

3d. Giving the line-plate D a tilting motion about its own axis, to present its flat surface to the board under all circumstances.

4th. Maintaining the pressure on the middle of the board, irrespective of the portion of the cutters to which the board is submitted, by means of the weighted levers G.

No. 15,403.—Asahel Lockwood, assignor to Lucien B. Flanders.—*Improved Planing Machine.*—Patented July 22, 1856.

M represents an adjustable guide which is fastened to the cross-head E; it is provided with a sliding piece N, the rod O of which is connected at P with the circular table K. If the adjustable guide M is secured by the set-screws *c c* in a position parallel to the ways C C, fig. 2, the vibrating table K will move in concert with the lower bed I, and will not vibrate upon the centre pin L. But if the guide M is turned in the least degree from the parallelism of the movement of the bed B, the cutter F will describe a curve of a very long radius, and the more the guide is turned the shorter will be the radius of the curve described by the tool F. The table K can turn on the plate B by means of the cir-

cular dovetail grooves and tongues *a a;* the plate I is supported by the bed-piece B.

Claim.—The support I I, with its circular dovetail grooves *a a* or their equivalents attached to the bed-piece B, together with the vibrating table K, turning upon the centre-pin or king-bolt L, and in combination therewith the adjustable guide M and the sliding-head N, so adjusted and combined that a greater or less vibratory motion can be secured to the table K, by means of the adjustable guide M, by bringing it out of a parallelism with the ways C C and the bed B, in the manner and for the purpose set forth.

No. 16,185.—Hudson Osgood.—*Improved Planing Machine.*—Patented December 9, 1856.

The board to be planed is placed on an endless travelling bed L, and kept down on it by means of a holder K; this travelling bed feeds the board sidewise, at the same time that the planes P, attached to belt A^1, are drawn over the boards, whereby the cut made by each of the planes is diagonal on the surface of the boards.

The inventor says: I do not claim an endless belt and planing-cutters, arranged together, so that their planes of rotation or movement may be in the same direction, as in my machine they are arranged so as to cross or stand at right angles to one another.

I *claim* my arrangement of the endless bed and the belt of planes, substantially as specified, that is, so that when a board is being planed by such it shall be moved transversely under the planes, and the planes be drawn longitudinally over and against its surface.

No. 14,038.—Hiram C. Wright.—*Improved Arrangement of Feed-Rollers for Planing Machines.*—Patented January 1, 1856.

The shaft N when in motion drives the cutters D and E and the feed-rolls A and C; the board is placed on the table F, and resting on its edge passes the end of the feed-rolls C, and is carried through over the cutter E, matching its edge, and the rolls A draw it clear through; then the operator, turning the board on its other edge, passes it back to the other side of the middle roll A, thus matching each edge straight. The feed-rolls consist of a stationary one in the middle and two movable ones on each side, the bearings of each movable one being arranged with joint levers *p p*, connected by a rods J, so as to move the end of the same roll equally and keep its surface parallel with the stationary one. The rod J J J J, supporting the weighted bars K K, transfer through the levers *p p* the requisite pressure to the rolls.

The inventor says: I *claim* governing the motion of the movable feed rolls by means of the jointed levers and connecting rod, or its equivalent; whereby I am enabled to keep their surfaces parallel with the middle one, and thereby feed the board on a line with the surface the table, as above first set forth.

No. 15,129.—Valentine Houck.—*Improvement in Certain Devices in Planing Machines.*—Patented June 17, 1856.

As soon as the board comes under the first feed roller *h*, it presses the board and forces the piece *s* down upon the spring Q, which acts upon the wires *u u*, which passes through a friction roller, and draws back the rest *i*. The board, thus freed from any lateral compression, resumes its natural shape, and its convexities are cut off by the knives *f* and *g*.

The inventor says: What I claim as my invention is the movable rest, and the springs *i* attached, and the piece *s* in the slot *j*, which combined with the wires *u u* produce the effect which I have described.

The inventor says further: I fasten to the cylinder *g* planing-knives its whole width. They strike the edge of the board and plane it smooth. I then fasten the grooving or moulding-knives into the cylinder behind the planing-knife, and so that they strike the edge of the board before it is planed by the planing-knife, being the longest. The result is, that no feather is left, and as many and as different shaped moulding and grooving knives can be introduced, either on a line or one between the other, as may be desired, without involving the necessity of changing the planing-knife or other grooving-knives. In this way as many and as different formed mouldings and grooves may be made as is desired, by passing the board once through the machine. This arrangement of knives, by placing the grooving and moulding-knives behind the planing-knives, instead of on a line with them, is what I *claim* as my invention.

And I ask for a patent for these improvements, so that I may either construct a machine combining them, or sell the improvements to others, to be used upon machines already constructed.

No. 14,263.—Loison D. Towne.—*Cutter-Heads for Planing Machines:*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim a wedge for holding or spreading the cutters, as this is not new.

But what I do *claim* is the clamping or holding of the cutters *d d* between the brace C C and sides of the cutter-head A, by means of the conical or wedged-shaped form of the plug B and braces C C, or their equivalents, and whether said head be solid or made in two or more sections, substantially as described.

No. 15,365.—Lewis M. Berry.—*Improved Cutter-Heads for Planing Machines.*—Patented July 22, 1856.

The parts *l* and *m* are inserted into the cutter-head in a similar manner as the cutter-knives *d* and *c;* the projections on both their ends

play in grooves and the space between the parts *l* and *m*, and the knives *d* and *c* can be adjusted by turning said parts in their circular grooves. By this arrangement the stuff to be worked is prevented from being drawn towards the cutters, thereby lessening the danger of accidents to the operatives, and preventing the cutters from taking a deeper hold in the stuff, and thus spoiling the article.

The inventor says: I am aware that in a common hand plane, and in the spoke shave and similar tools, that part of the stock immediately forward of the cutter serves in some respects a similar purpose; such therefore I do not claim.

But I *claim* the application and use of the pieces *l* and *m*, substantially in the manner and for the purposes set forth.

No. 14,272.—Charles Burleigh, assignor to The Putnam Machine Company.—*Improved Gearing for Feed Rollers of Planing Machines.*—Patented February 12, 1856.

A is the shaft of the lower roll, B the shaft of the upper. Motion is transmitted from shaft A to shaft B by means of gearing C D E F. To prevent wheel E from dropping into a position where it should engage with both the wheels C and F at the same time, the links G H G^1 H^1 are made use of. They are geared together for a short distance by means of cogged sectors; M are the straight links which connect the auxiliary gears D E.

Claim.—The toothed links H and G, constructed and operating in the manner substantially as herein set forth.

No. 16,144.—Jonathan P. Grosvenor.—*Improved Method of Clamping Cutters in Cutter-Heads for Planing Machines.*—Patented December 2, 1856.

The collars *f* to which the cutting blades *g* are secured are provided with tongues and grooves *e* and *i*, fitting into each other; the collars being placed upon shaft B can be secured there by means of screw nut Q. This arrangement does away with the use of the long single cutter heads where thick pieces of wood are to be moulded, as several collars *f* can be interposed between two knives *g* to leave uncarved spaces between the mouldings.

Claim.—Connecting the collars with each other, or with the core blocks, by means of tongues and grooves, in the manner substantially as described, for the purpose set forth.

No. 14,130.—Benjamin F. Avery.—*Machine for Bending Plough Handles, &c.*—Patented January 22, 1856.

The operator places a mould C upon the block A and applies the hook J to the projection D, and presses the handle K over the yielding bar to hold the bar G perpendicular, while he puts the end of the

strap (which may be of tough wood) into the projection D, and the end of the handle E also, which is to be bent. He then places the upper end of the handle under the stop I, which is brought down upon it by turning the nut H, when the operator pulls the bar G with the handle over the mould so as to bend it over the flange L, and press the bar of the handle down so as to insert the pin *e* over the strap and handle, to hold them on to the mould until sufficiently dry to remain in the bent position.

Claim.—The strap G above described, constructed in any manner substantially the same for the purposes set forth.

Also, the combination and arrangement of the several devices constituting the machine, substantially as described.

No. 15,382.—John Moore.—*Improved Polishing Machine.*—Patented July 22, 1856.

The shaft S of pulley D is attached to the frame B; the frame C, which supports another pulley E on the shaft V, can be turned on the shaft S as its fulcrum. The frame F, which can swing on shaft V, supports the polishing rubber R, driven by pulley P. By this arrangement the rubber R can be moved to any place of the table A without deranging any of the running parts of the machinery.

Claim.—The general construction of the machine substantially as described, having a rubber R revolving by power, and so constructed as to be readily applied whilst in motion to all parts of the work as required.

No. 15,600.—Legrand Crofoot.—*Instrument for Laying out Rafters.*—Patented August 26, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—The combination of the adjustable expanding measure A B with the adjustable bevels D and E, substantially as described for the purpose specified.

Also, in combination with the above, the fixed square plates sliding on the bevels D and E, substantially as specified and for the purpose set forth.

No. 15,398.—Harry White.—*Improved Method of Riving equal Pieces from a Block.*—Patented July 22, 1856.

The nature of this invention consists in so constructing and operating a cam Q as to make it traverse the carriage D and block G^1 under the froe J, so that the froe will first split off a portion of the block sufficient for a number of shingles, and then split it in the centre, and each of the pieces formed in the centre successively, until the whole block is split into a proper number of pieces of the desired thickness; also in

applying the springs X and X^1 so as to yield when the froe enters the block G^1, and re-act to close the split when the froe is withdrawn.

Claim.—Traversing the block to be split by means of devices substantially as are described or their equivalents, so that the froe will strike the pieces to be split in the centre successively to split them, substantially as set forth.

Also, the springs X X^1, so applied as to yield when the froe enters the block and re-act to close the split when the froe is withdrawn, as described.

No. 15,163.—Aza Arnold.—*Improved Self-setting or Self-raking Saw, for Sawing Machinery.*—Patented June 24, 1856.

When the end of the log moves up to the saw, it comes in contact with the front of the teeth at the lower parts of the saw, and the foot of the same retreats to a certain distance which is determined by a screw C; having retreated, the saw hangs over forward enough for the cut of the stroke. When the board comes back against the opposite side of the saw, it again retreats until the heel comes to the opposite stopper.

The inventor says: I do not claim the making or using of a two-edged saw, neither do I mean to confine myself to any precise form or dimensions of the mill; for my new method of adjustment, as before described, is applicable to various forms of common saw mills, whether they be operated by steam, by water, or other power, whether the saw vibrate vertically or in a horizontal or inclined position. I prefer a double mill, that is, having a sash or saw-frame so constructed as to have a saw on each end of the cross-head and two carriages, each log being moved and cut independently; but in some situations I design to use single mills.

But I *claim* the combination of a retreating motion (as set forth in the foregoing description) with the two-edged reciprocating saw, by which combination I can give any desired adjustment of cut, and feed at pleasure to enable the saw to cut during its whole descent.

No. 15,718.—L. A. Dole, assignor to Dole, Silver, and Felsh.—*Improved Saw-Gummer.*—Patented September 9, 1856.

The saw to be gummed, represented in dotted lines, is laid flat-wise upon the die F, and the spaces between the teeth are cut out by depressing the outer end of lever D, the die E being brought down, owing to the eccentric attachment of the bar C to the lever D, which works against the under side of the stock A in the opening *c*, the shoulder *a* bearing upon the base B and serving as a fulcrum for the lever D to raise the bar C. The cut pieces from the saw pass down through the passage G.

Claim.—Arranging the cam or moving crank below the die, either in or below the die-block, so as to draw down the punch or male die-block, substantially as described.

Also, the cam lever D with a movable fulcrum, in combination with the opening *c*, so constructed and arranged as to traverse the bar C with a positive motion in each direction as the lever is vibrated, as described.

No. 15,811.—Samuel J. Lewis and William Alston.—*Improvement in Saw-Gummers.*—Patented September 30, 1856.

The saw to be gummed is placed in position to be moved up and down between the punch *i* and die *h;* the carriage D is then pushed forward by the lever *e* so as to bring the rest *m* to support the end of the tooth, when the lever *p* is pressed down, thus forcing the punch *i* into the die *h*, and carrying with it the gum from the under side of the tooth to the chip-way *t*. The carriage is now moved back so as to allow the movement of the saw to present another tooth.

The inventors say: We do not claim separately either of the respective devices constituting the saw-gummer, as described.

But we *claim* the punch A, constructed as described, in combination with the die B, constructed and seated as described, the same being arranged in the carriage C so as to rotate and operate together, in the manner and for the purpose set forth and described.

No. 14,863.—Jackson Gorham.—*Improved Hand-Saw.*—Patented May 13, 1856.

Claim.—The construction of a saw so as to answer the purposes of both saw and square in one and the same instrument.

No. 15,399.—James O. Woodward.—*Improved Machine for Sawing Coopers' Hoops.*—Patented July 22, 1856.

The nature of this invention consists in an arrangement of two circular saws A A for sawing hoops from irregular or crooked hoop-poles, one of which saws can be moved in the direction parallel to the length of the shaft B, in order to saw various sizes of hoops. The shafts B hold the saws at their inner ends, both standing in an oblique position, so that the two edges of said saws operate near together; thus the saws will take out a part of the centre of the hoop-pole, leaving the outside fit for use. The hoop-pole is fed to the saws by the corrugated rollers G and G G.

Claim.—The new arrangement and operation of two circular saws for sawing irregular or crooked hoop-poles, and the two shafts with the saws attached at the inner ends thereof, being placed on an angle so that two edges of said saws run or operate near together, and the two opposite edges of said saws will run or operate wide apart.

No. 15,216.—David Bowen.—*Improved Machine for Sawing Felloes.*—Patented July 1, 1856.

On the shaft *d* of the clamp-box E is a cog-wheel *e* meshing with pinion *f*. On the shaft of pinion *f* is a ratchet wheel *g*, whose pawl H

is attached to lever *i*, the long arm of which is attached to the saw-gate *k*.

The cogged shanks of the clamps F F mesh with the pinion *p*, by which a simultaneous adjustment of the clamps in opposite directions is effected.

Claim.—The plank clamps F F, simultaneously adjustable in opposite directions, in combination with the mechanism connecting their case with the saw-gate.

No. 14,339.—William P. Wood, assignor to Himself and John S. Gallaher, Jr.—*Improved Sawing Machine.*—Patented February 26, 1856.

The bearing *g* of the upper rocking-beam slides in ways *e e*, and can be raised by means of a screw and nut J.

Claim.—Attaching two saws *s s* to the opposite ends of two parallel rocking-beams *m m*, by means of swivel bearings, and in combination with the mode of straining, substantially as described.

Also, in combination with the saw table and upright or column, the reversible graduated scale-gauge W W, as set forth.

No. 14,757.—Thomas J. Alexander.—*Improved Sawing Machine.*—Patented April 29, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—1st. Giving to the revolving saw B a reciprocating action across or along the bed, in combination with the reciprocating movement of the bed or table A, simultaneously in opposite directions.

2d. Hanging or supporting the revolving saw B and bed or table A to give them their specified compound parallel or otherwise equivalently reciprocating movement, simultaneously in opposite directions on or to radial arms *c* and *e*, arranged substantially as set forth, and geared together by toothed segments *l*, or otherwise equivalently connected or driven to produce the necessary contra joint action of said radial arms, whereby the proper reciprocating actions of the saw and bed relatively to each other are insured, and the movement of the one may be made to actuate the other.

No. 15,026.—Henry S. Vrooman.—*Improved Sawing Machine.*—Patented June 3, 1856.

As the saws O work up and down, the carriage B is moved so as to feed the timber to the saws. The patterns J give a lateral movement to the saws, in consequence of the rods *l* bearing against them, said rods moving the frames F G and the saw sashes, and the rods P and levers O will turn the teeth of the saw in the direction of the line of their cut or kerf, because the friction rollers *t* bear against the patterns J.

In case the sides of the stuff or timber are to be cut bevelling or winding, the patterns M in the sides of the bars N are made in proper form, and the rod *f* will be raised and lowered, turning the frame G within the frames F, so as to throw the saws O in oblique positions, (figure 1.)

The inventor says: I do not claim giving saws a lateral movement in their sashes for sawing curved or irregularly formed articles, for this has been previously done.

But I *claim*, 1st. The combination of the frames F G and sashes H, when connected and arranged as shown, so that the sashes H and frame G may be turned within or upon the frames F, and thereby allow the saws to be operated in oblique positions, for the purpose specified.

2d. The employment or use of two patterns J M, when said patterns are so arranged or connected with the frames F G and saw sashes H H, that one pattern J will give the saw its lateral movement, and also turn the saw in the sashes, so that their teeth will face the intended direction of the cuts or kerfs, while the other pattern M will move the saw, when necessary, more or less obliquely to give the winding or bevelled side to the work or stuff, as herein described.

No. 15,012.—William D. Leavitt.—*Improved Sawing Machine.*—Patented June 3, 1856.

The saw is adjusted to suit any thickness of lumber by means of wheel 16, lever 15, and flanges 23, on saw-shaft 11. The spindle to which wheel 16 is attached is provided with a screw-thread and works in a nut 37 let into the frame 1.

The table 18 is attached to the saw-shaft 11, in the manner as shown, for the purpose of moving it with the saw.

The inventor says: I disclaim moving the saw laterally for gauging the thickness of the board to be cut, as such is not new; but I *claim* the arrangement of devices for effecting that purpose when combined with the mechanism described for setting the saw forward in its own plane.

No. 15,438.—T. T. Prosser.—*Improved Sawing Machine.*—Patented July 29, 1856.

The saw F is attached, at both its ends, to the ends of the levers D and E, which turn on pivots in the upper and lower end of the upright C. The short ends of the levers D and E are confined in the slots of the rod J, and, by operating the set-screws K, the saw F can be strained.

Claim.—The levers E D, pivoted or attached to the uprights C C; the saw F being placed at one end of the levers, and the levers adjusted by the bars J and set-screws K at the opposite ends, substantially as described for the purpose set forth.

No. 15,414.— A. S. T. Copeland.—*Improvements in Sawing Machinery.*—Patented July 29, 1856.

The saws are hung and strained in saw-heads H H, attached to a pitman which passes through an orifice O. S S are saw-strainers working in the saw-heads by means of the screw-nuts N N, and the saws are inserted in the slits L. The saws can be adjusted, and are held in their proper position, by means of the set-screws *m*. The saws, when hung and strained as aforesaid, have a peculiar manner of working in the logs, the bottom of the saw cutting from the centre of log to bottom of log, and the top of the saw cutting from the top of the log to centre of log, the saw in its downward motion describing two arcs of circles, which meet in centre of log. Pitman and saw shafts are reversed, so as to enable the saws to cut through the logs each way by means of the belt reversers 2 and 3, standing in catch plate P, which can be moved respectively into the catches 2 and 3, whereby the motion of the driving-shaft can be reversed.

The inventor says: I do not claim that attaching a saw to pitman is new. Nor do I claim the muley saw, gate or sash spring, pole or levers, crank pins set in balance wheels, or any other connexions on old principles.

But I *claim* the saw heads H H and saw strainers S S, and the combination of said saw heads and strainers with the screw-nuts N N and screws Q Q and *m m*, in any manner substantially the same as shown and described, for the purposes set forth.

Also, the attaching of saw heads to pitman in any manner substantially the same as shown and described, for the purposes set forth.

Also, the combination of belt reversers 2 and 3 with the mechanism for starting and stopping saws and reversing pitman and circular saw shaft, in any manner substantially the same as shown and described, for the purposes set forth.

Also, log reversers 1 and 1, 2 and 2, 3 and 3, and 4 and 4, operating in the manner shown and described, for the purposes set forth.

No. 15,790.—William P. Wood and Samuel De Vaughan.—*Improved Devices in Sawing Machines.*—Patented September 23, 1856.

Motion being imparted to the cogged wheel I, the pinion F is rotated, causing the crank pin K to operate the lever H by playing in the slot in said lever. The lever H turning on its fulcrum operates the beams E, connected by means of rod *e*, and imparts a reciprocating motion to the wedge-shaped saw M, the smooth edge of which is guided by means of the fluted rollers *o* and *p*.

Claim.—1st. The arrangement of the driving-beam H in combination with the rocking-beams E, in the manner substantially as and for the purposes set forth.

2d. We claim the arrangement of the fluted feed-rolls O and P in combination with a reciprocating wedge-shaped saw blade, substantially as and for the purposes described.

3d. We claim the wedge-shaped saw blade M when constructed and operated in the manner and for the purposes set forth.

No. 15,078.—Joseph Kurtzeman.—*Improved Method of Operating Head-Blocks of Sawing Mills.*—Patented June 10, 1856.

By moving the lever K in one direction, the dogs C C will only be moved by means of pawl J, ratchet I, &c.; but by moving it in the opposite direction, the head-block B will also be moved, the pawl N catching against the teeth in the rim or hub *b* when the shaft L is turned in one direction, and slipping over them when the shaft is turned in the opposite direction.

Claim.—Connecting the dogs C C to the shaft H by means of the racks *a* and gearing E F G, in combination with the toothed wheel *o*, having the hollow hub or geared rim *b* attached, the wheel being placed loosely on the shaft L, which is provided with the pawl N, substantially as shown for the purpose specified.

No. 15,689.—Calvin Dilkes and George S. Dilkes.—*Improved Method of Feeding Sawing Mills.*—Patented September 9, 1856.

As the saw frame B is moved up and down, the cord H, wound around pulley G, causes said pulley to assume a reciprocating rotating motion, and the pin *g* on said pulley sliding in the slot of lever F will cause said lever to turn on its fulcrum *e*, and to operate the disk E and pawls D and D^1, and through these the feed wheel C. This feed motion can be adjusted to almost any degree, either by changing the position of the pawls D and D^1 to any of the holes 4 5 6, or the position of the stud *g* to either of the holes 1 2 3, or, lastly, by loosening the cord H and changing the position of the pulley G.

The inventors say: We do not claim operating the feed wheel by means of pawls operated by the saw frame through the medium of a lever.

But we *claim* giving motion to the pawls which actuate the feed wheel by means of the cord H and pulley or short cylinder G and its stud *q*, in combination with the slotted lever arm F and its plate E, the same being constructed, combined, and operated together substantially as set forth.

No. 15,559.—R. Eickmeyer.—*Improved Method of Regulating Velocity of Feed for Sawing Mills.*—Patented August 19, 1856.

When the shaft H^1 is rotated, a variable motion will be communicated to the shaft G; for when the pin *h* of the shaft G is at the inner end of the grooved plate *i*, the motion of the shaft G will be considerably slower than when the pin *h* is at the outer end of said plate, and the shaft G, therefore, will rotate about half a revolution quicker than the other half. By this means the carriage is operated quicker at one time than at another, and the log is fed to the saw in a proper manner; for if a vertical reciprocating saw is used, the log must be fed to the saw as the saw descends, and the crank on shaft H^1 must be so placed that the most rapid motion will be given to the carriage as the saw descends.

Claim.—Driving or operating the log carriage by means of two shafts I and G placed more or less out of line with each other and connected by a pin *h* and grooved-plate I, or draw-link *j*, or any equivalent device, for the purpose of giving a desirable movement to the carriage, thereby feeding the log to the saw as described.

No. 16,034.—A. S. Walbridge.—*Improved Self-acting Head and Tail Blocks for Sawing Mills.*—Patented November 4, 1856. Canada, July 20, 1853.

The principal features of this invention will be understood by reference to the claims and engravings, a detailed description thereof would take up too much space to be given here.

Claim.—The combination and arrangement of the T-shaped carriage blocks B B, connecting rack C, and setting-off shaft B, substantially as specified, whereby a self-operating carriage of any desired length or compactness is produced.

Also, the self-setting-off device, composed essentially of the ratchet I, disks V W, adjusting-stop O, and stationary cam U, arranged and operating substantially as described.

No. 15,330.—Joel Dawson.—*Improved Self-setting Tail-Block for Sawing Mills.*—Patented July 15, 1856.

When the carriage B is gigged back, moving in the direction of the arrow, the outer end of the lever E will strike against the oblique board H, the friction-roller *g* bearing against said board. The lever E will consequently be turned on the pin *d*, and the pawl D^1 will act upon the rack *c* and throw out the block C on which the end of the log rests. The tail end of the log will consequently be adjusted to the saw at each stroke of the carriage; as the carriage B moves forward the lever E will strike against the screw G, and will be thrown back to its original position to be again acted upon by board H, when the carriage is gigged back.

Claim.—The bent or curved lever E, with pawl D secured to it, adjustable block E, with the screw G and oblique board H attached, and the sliding-block C with rack *c* secured to it.

No. 14,305.—Nathan T. Coffin.—*Improved Mill Saw.*—Patented February 26, 1856.

The numbers in the engraving represent the distances in inches.

The inventor says: I do not claim the spreading of the square-edged teeth by the use of the forked punch, or otherwise; nor do I claim the bevel or diamond pointed teeth, nor the topping down or turning of the points of the teeth by the use of the hammer, or otherwise. But what I do *claim* is, the arrangement of the common shaped mill-saw teeth on

the blade in sets of three teeth each, with a wide deep space under the lower tooth of each set of teeth.

Also, the increasing of the spaces of the teeth from the centre of the saw each way to the ends.

Also, the regular combination of the square edged and the diamond or bevel pointed teeth, the former standing straight with the blade.

No. 14,909.—Bela Gardner.—*Improved Method of Operating Saw-Mill Blocks.*—Patented May 20, 1856.

While the carriage A is moving and the log is being fed to the saw, the two clutches H N are out of gear with their respective pinions G M; but when the carriage reaches the end of its stroke and is gigged back, the operator depresses the rod Q, throwing thereby the clutch N in gear with the pinion M; and as said pinion rotates with the shaft L, the endless chain J will be operated, and also the pinion G, the clutch H being also thrown into gear with its pinion G, and the screw F will be rotated and the head-block D moved laterally on the carriage A the proper distance corresponding to the thickness of the stuff required. The operator then removes his foot from rod Q, and the spring S throws the clutch out of gear with the pinion M, and the motion of the endless chain ceases.

Claim.—Operating or adjusting the blocks of saw-mill carriages by means of the screw F, endless chain J, and shaft L, in connexion with the pinions G M and clutches H N.

No. 14,844.—George W. Hill, assignor to Francis Lyons and George W. Hill.—*Improved Saw-Mill Dogs.*—Patented May 6, 1856.

The arm G acts as a guide in moving the bail block, preventing any swaying, while it answers as a brace when at rest. The die H is movable in a mortise through the bail block, and is thrown in or out of gear at the will of the operator by means of spring I. Thus if the spring be raised into the bearing *e*, it exerts a lateral pressure forward on the die. The spring has also a downward pressure at the die, which causes it to drop below the guard *f*, which secures it in its connexion against the liability of an accidental disconnexion. By dropping the end of the spring bar I from the rest *e*, the die is thrown out of connexion with the screw, leaving the bail block free to be moved by the bar of the sawyer. The tail block is of a construction analogous to this.

Claim.—The peculiar form of the bail block A, having a front and back rest or bearing, in connexion with the arm G clasping the shaft of the screw C, in the manner and for the purpose described.

I also claim the die or dies H and H^1, in connexion with the spring-bar I, the rest *e*, and the guard *f*, the whole arranged, combined, and operated in the manner herein set forth.

No. 15,893.—Samuel C. Norcross.—*Improved Adjustable Stirrup for Saw-Mill Pitmen.*—Patented October 14, 1856.

The stirrup B fits over the end of the pitman A, and is secured thereto by the bolt C and keys D D^1; when it becomes necessary to lengthen the pitman, the bolt and keys are removed and the stirrup B is drawn out, as represented in fig. 2, and there secured by the bolt and keys as before.

The inventor says: I do not claim the bolts E, by which the stirrups and pitman are secured to the saw; but I *claim* the manner of attaching the stirrup to the pitman, substantially as set forth; whereby its position on the pitman, and consequently the length of the pitman, may be varied for the purpose of altering the position of the saw with respect to the log.

No. 14,206.—John S. Snider.—*Improvement in Saw Mills.*—Patented February 5, 1856.

Fig. 2 represents a front view of the machine. D D are horizontal slides to which the log *e* is dogged; said slides being provided with racks *a* on the under side, which move in grooves in the head-block A and tail-block B, by the action of pinions *c* on shafts Q, which latter have their bearings in the blocks A and B, respectively. The large wheels G upon the outer ends of shafts Q gear into pinions Q^2, which latter are fastened to short hollow shafts O, through which (the holes in the shafts being square) the square shaft F passes. The scale or ratchet-wheel R is fastened to the outer end of shaft F. The hollow shafts O have their bearings in boxes P attached to the blocks A and B, so that these latter are free to slide (together with the hollow shafts and the pinions Q^2) towards or from each other upon the said shaft F.

Claim.—Such construction of the scale wheel R and its combination with the large cog-wheel G, that the position of the lever, when on its rest, will be always zero, and that the log may be moved at both its ends equally any required distance, by raising the lever from its rest and counting one eighth of an inch or a different fraction, according to the cast of the wheels for each cog that the pawl may pass over, and pressing the lever down again upon its rest when the requisite distance is obtained, so that the setting of the log requires no calculation or reference to a scale, and may be done with perfect accuracy by the ear or by the eye, and it is thus set at both ends by a single scale wheel and a single pawl, and thus necessarily set alike at both ends, which is not the case where the ends are set each by its separate framing.

Also, the combination of wheels, which are so adjusted as to effect the above named objects and also to give greater power to the lever in moving heavy logs, and more accuracy in adjusting them, as the log is thus made to move slow in proportion to the motion of the lever, and is not subject to be put out of its place by its own momentum or by the spring of the rods. In this construction and combination the journal and the pinion wheel and the scale wheel are cast together, and the rod passes through the journal and moves with it, so that the lever, when

pressed down, moves the pinion wheel Q^2, which gives motion to the wheel which moves the head block slide, and at the same time the journal moves the rod, and by it the tail-block slide, so that the rod communicates motion to the tail-block slide only, and is not put to the strain requisite to move both slides and with them both ends of a heavy log.

No. 14,700.—E. H. Stearns.—*Improved Head and Tail Blocks for Saw Mills.*—Patented April 15, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—The eccentrics 15 15, one, two, four, more or less, or their equivalents, in combination with the setting-arms 11 11, and ratchet-racks 9 9, or their equivalents, for the purpose of moving and setting the log laterally to the saw.

2d. I claim the combination of two or more pieces composing the sliding-dogs 6, passing through one or more openings 20 on the same side of the saw, so near each other that they may be driven in or out of the log by the same blows of the mill-bar, the ends of these dogs being so bevelled or chamfered as to cause them to bind and tighten themselves in the openings through which they pass, which dogs may be made in separate parts, or jointed partially at their heads, but not so close or firm as to prevent the parts from binding in their openings when driven into the log.

3d. I claim the combination of the levers 22 and 23, and recess 25, made in the under part of the sliding-head 5 in the foot-block, and operated by the motion given to the sliding-head, which combination forms an extra safety-trip for stopping the saw carriage when the dogs come opposite the saw, to prevent the saw from striking the dogs; all substantially as and for the purposes set forth, or any other mechanical equivalents which are operated by the motion given to the sliding-head 5, as before mentioned.

No. 14,943.—Lucius B. Adams.—*Improved Method of Operating Head-Blocks of Saw Mills.*—Patented May 27, 1856.

As the carriage B commences its backward movement, the roller K will pass up one of the inclined planes M, and the lever I will be raised, the pawl *b* turning the ratchet H, and the pinion F and rack E will move the slide D, to which the end of the log is secured by dogs; the slide being also moved in a similar manner by the other inclined plane at the termination of the backward movement of the carriage. The log will thus be properly set at both ends when the carriage moves towards the saw.

The inventor says: I do not claim operating the slide D by means of the ratchet and rack and pinion, for these have been previously used; but I *claim* the lever I with pawl *b* attached, and lever or arm J having a roller K at its lower end, and the inclined planes M M attached to the flooring L; the above parts operating in connexion with the ratchet H, pinion F, and rack E, substantially as shown.

No. 15,062.—John M. Carlisle.—*Improved Method of Operating Head-Blocks of Saw Mills.*—Patented June 10, 1856.

Motion being given to the driving pulley S, the endless belt K is operated by the gearing N O, and the carriage C has a reciprocating motion communicated to it as it is attached to the belt K by the arm T. As the outer end of arm T passes around the pulleys L M, it will strike against the pins *d d* and actuate the slide I, which causes the pawl J to turn the rachet F^1, thereby moving the bar H and also the log which is attached to said bar. The log, therefore, will be set to the saw at each stroke of the carriage; and as one of the pins *d* is adjustable, the log may be moved a greater or less distance at each stroke.

Claim.—Attaching or connecting the carriage C to an endless chain or belt, by means of an arm T, arranged as shown, so that it will actuate, at each end of the stroke of the carriage, a slide I, having a pawl J attached, which, by means of suitable gearing, as shown, moves or sets the log to the saw; whereby the feed movement of the carriage, and also the setting movement of the log are rendered automatic or self-acting.

No. 14,172.—Philos B. Tyler.—*Improved Method of Attaching Teeth to Saw Plates.*—Patented January 29, 1856.

The nature of this improvement will be readily understood from the claims and engravings.

Claim.—1st. The hardened nib-holders *b*, attached to the saw-plate S, at each tooth, to hold a small cutting-nib *e*, as described.

2d. The cutting nibs attached to the saw teeth; whether by means of the nib holder, or directly connected with the plate, constructed and combined with the saw specifically, as herein specified.

No. 15,304.—Orrin Rice.—*Improved Method of Guiding Circular and other Saws.*—Patented July 8, 1856.

A is a hollow tube, closed at the back end to confine a spring, to be operated against by a set-screw B, for strengthening or weakening the spring at pleasure; the front end of the tube is open to admit a wooden peg, into which a screw is placed through the slot I, to prevent the spring from being pressed beyond a certain limit, and the wooden pegs bearing against the sides of the saw hold the same in a line.

Claim.—The application of the spring, in any shape or form, to any anti-friction substance to be applied directly against the saw, and, by traversing over the uneven surface thereof, preventing the saw from trembling, and for strengthening, steadying, and guiding the same while in motion; thereby enabling a much thinner saw of the same diameter to be used than otherwise could be, without the application of my improvement, thereby effecting a great saving in power, timber, and repairs.

Also, the application to govern the side-moving or lateral motion of large saws for sawing logs, occasioned by the springing of the same.

No. 14,950.—William Clemson.—*Improvement in Grinding Circular Saws.*—Patented May 27, 1856.

The metallic roll E serves the double purpose of feeding the saw to the stone and of revolving it upon its mandrel. The saw is secured in the clamps h h^1, and turns upon the pivot f, which latter is made flat, the width of the central portion f being equal to the diameter of the eye of the saw; the notches e passing over the ears g, upon the clamps, and holding the two parts h h^1 together.

Claim.—The combination of the roll E with the grindstone B.

2d. The use of the flat pivot for the purpose of enabling the stone to operate upon the entire surface of the saw.

No. 14,957.—Henry Gross.—*Improved Guard for Circular Saws.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The mechanical construction and arrangement of the circular saw-guard E, to wit: The whole in combination as a useful and novel invention to protect the workman from injury while working the saw, thereby keeping his hands and person away from the saw-teeth, and also preventing injury to him by keeping down the ends of the plank or stick while the saw is passing through it.

No. 15,130.—George Hutton.—*Improved Mechanism for Adjusting Circular Saws Obliquely to their Arbors.*—Patented June 17, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—The combination of the two spherical faced and peculiarly perforated movable collars C and D, with the concave fixed collar E, and the concave washer F, substantially as described and for the purposes set forth.

I also claim the employment of the adjusting screws J and K, in combination with the above described collars C and D, the concave fixed collar E, and the concave washer F, as set forth.

No. 14,379.—Andrew L. Whitley.—*Improved Method of Adjusting Circular Saws.*—Patented March 4, 1856.

In order to bring the lower portion of the teeth of the saw X directly over the upper portion of the teeth of the saw Y, the screws o in the ends of the fork p are adjusted: this operation causes the arm I to turn on its pivot j; the forked ends of the arm I are hinged to the saw-shafts a and h, and thus the position of the saws can be adjusted by operating the screws o. The saws can be adjusted into the same vertical plane by raising and lowering one end of the frame g and

operating the screws *n*, which cause the frame *g* to move horizontally. When the saws become smaller by use, the bolts L are loosened, which relieves the bar *g* from the arcs G, and the bar *g* is then moved along the arcs G until the saws are brought as near each other as desired.

Claim.—I do not claim any construction by which the shaft is prevented from having any lateral motion; but I claim—

1st. The adjusting of the two saws at the same time towards each other by means of the swinging arm and its set screws, as herein described, or in any other way substantially the same, and without allowing any end play to the shaft.

2d. The combination of the device above claimed with the devices L *m n* and *l* for the purpose of adjusting the saw in every direction, as hereinbefore described.

3d. So constructing the adjusting mechanism that it follows the shaft when moved around on the arc.

No. 14,705.—James M. Kern, assignor to Enoch P. Fitch and Isaac Scott.—*Improved Method of Adjusting Circular Saws for Concave and Convex Work.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: Saws have been so arranged that greater or less concavity may be given to them, and the saw has been cut from the eye to the rim so that it may be sprung into a dished form. I do not claim either of these things. But I *claim* so arranging a circular saw B with its followers E and F upon a shaft A, that said saw may be converted from a disk to a concave saw B^1, or *vice versa* without removing any of the parts from the shaft.

No. 14,268—James M. Kern, assignor to Enoch P. Fitch and Isaac Scott.—*Improved Method of Concaving Circular Saws.*—Patented February 12, 1856.

Claim.—The making of a dish-shaped saw from a flat circular saw plate by cutting away a portion B B B of the interior of the plate, and drawing a portion of the remaining metal into the spaces thus cut away, by which the desired concavity may be attained without cutting out to the periphery of the plate.

No. 15,368.—John Broughton.—*Improved Method of Driving Circular Saws.*—Patented July 22, 1856.

As the driving shaft rotates, motion is given to the saw by belts *g f*. A plank or log being laid on the table B, the operator takes hold of the rod K and draws the frame C and saw E forward, and cuts off the plank or log; then by letting go the handle it slides back to its former position. While the saw and arbor move forward in a horizontal line

the arbor and pulleys on the back end of the frame C will move in an arc of the centre J. This arrangement, while admitting a sliding saw and stationary table, will allow the saw to be driven with the smallest number of pulleys and least amount of belting.

Claim.—The sliding frame C placed and working between the horizontal and segment guides or ways *b e* in the frame A, the frame C having the saw E placed within it, and driven by the belts *f g* from the shaft J, arranged relatively with the frame C, as shown and described for the purpose specified.

No. 14,241.—Westel W. Hurlbut.—*Improved Method of Hanging and Adjusting Circular Saws.*—Patented February 12, 1856.

The bearings H H are intended to be placed upon and bolted to a proper frame.

The saw A and saw guides F F may be set for sawing the lumber obliquely or square, by raising or lowering the bearing C^1 by means of turning the bolt N to the desired height. The bolt O, passing through slide K into the bearing C^1, is used to set the saw and guides in the desired position sideways.

Claim.—1st. The arms B B B^1 B^1 as connected with the bearings C C, and supported by the pins or centres G G in connexion with the slide K.

2d. The moving of the saw A, either sideways or diagonally, by the use of the slide K and the bolts O and N, or their equivalent.

No. 14,188.—John Godfred Ernst.—*Improved Saw-Set*—Patented February 5, 1856.

The object of this improvement is to produce a centre upon which a circular saw can revolve. The arms *a* are hinged to the screw D and rest against stops *b* upon plate C. By turning the screw D a little, the ends of the arms *a* may be thrown out more or less, in order that the circuit formed by their extremities may suit the size of the central hole of the saw-plate. The arms, when properly adjusted, may be fixed in their position by screwing down upon them a nut E. H is the hammer, and B, with the saw upon the centre *a a a a*, can be inclined more or less so as to give the saw-teeth the required set.

Claim.—The use of the expanding arms *a a a a* in connexion with the plate C and screw nut E, arranged and operated in the manner herein described.

No. 14,936.—Edward S. Watson.—*Improved Saw-Set.*—Patented May 20, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The arrangement of the side set-screws H, under the bed A

for the saw-plate and the central adjusting screw D, for giving to the bed and the saw-blade the inclined position, and thus allowing the tooth of the saw to have given to it the curved or twisted face.

No. 15,007.—Benjamin Gilpatrick.—*Improved Saw-Set.*—Patented June 3, 1856.

The cone J receives the various sizes of circular saws, and by raising or lowering the cone J it may fill any ordinary sized hole in the circular saw, so as to constitute its guide around which it revolves when the teeth are being set, and this cone also raises or lowers the saw so as to give more or less set to the teeth. The cone J and pedestal F can be advanced or receded from the setting-punch on the track E.

Claim.—The pedestal F, the screw H attached thereto, and the check-nut I and truncated cone J, or their mechanical equivalents, arranged and operated essentially in the manner and for the purposes set forth.

No. 15,119.—Lebbeus Brooks.—*Improved Saw-Set.*—Patented June 17, 1856.

By making the upper surface of the adjustable bed D angular and arranging it with respect to the jaws *a b*, the said bed may be adapted to operate on a saw tooth of any ordinary length or width, as the bed may always be brought between the two next adjacent teeth between which said tooth may be situated. When the bed has been elevated so that the top surface shall stand at the required angle to the bearing face of the jaw *a*, the guage G has only to be adjusted a distance from the jaw equal to the depth of the saw-tooth, and the instrument will be ready for use.

Claim.—Arranging the adjustable angular bed D in the jaw lever, and with respect to the jaws and sliding-gauge G applied thereto.

No. 15,679.—Wyllys Avery.—*Improved Saw-Set.*—Patented September 9, 1856.

To set a saw by means of this machine, the frames Q and R are adjusted to the desired angle by turning the blocks S, and the saw is then placed upon them, and the punch D is set to suit the angle of the teeth; the pin M is then adjusted in such a manner that when it is in a score between the teeth, one of the teeth will be in a proper position on the anvil C under the punch, so as to hold the pin in that position, when the tooth is set by striking the punch with a hammer.

The inventor says: I *claim* a traversing punch arranged so that it can be vibrated or turned to suit the form or position of the saw-teeth, being set substantially as described.

I do not claim a vibrating pin acting upon the teeth of the saw to traverse it endways.

But I claim the adjustable stationary pin M, so arranged as to bring

the teeth of the saw into a proper position under the setting-punch, when the scores between the teeth of the saw are forced into said pin, substantially as described.

I do not claim a vibrating frame to support the saw, hung directly opposite the setting-punch and anvil.

But I claim two separate frames, one hung each side of the anvil and setting-punch, so arranged that when one is turned back out of the way of the handle the other will support and sustain the saw, substantially as described.

I claim the revolving blocks for the above mentioned frames, which support the saw during the process of setting, substantially as described.

No. 15,731.—Abraham Casey.—*Improved Saw-Set.*—Patented September 16, 1856.

The saw-set being adjusted to the condition represented in fig. 1, the saw-blade is placed in the kerf E and clamped against the shoulder *j;* the plate F is then shifted from the position shown in fig. 1 to the position in fig. 2, and the screws *i* are tightened; then by pressing the lever B against the stock A, the punch C is forced forward against the tooth to be set. By raising or lowering the bolster D it can be adapted for the setting of coarse or fine teeth.

Claim.—1st. The combination and arrangement of the stock A, having a transverse kerf E, bevel bolster D, and punch B, substantially as and for the purpose set forth.

2d. Arranging the bolster on a turning screw-pin which moves in a slot and has a clamping nut, substantially as and for the purpose described.

No. 14,055.—Jacob Erdle.—*Improvement in Filing Saws.*—Patented January 8, 1856.

The eccentric E, keyed on the crank shaft A, will elevate the file frame on the return motion of the file, which is accomplished by keying the eccentric, so that its throw shall be at right angles to the crank. The eccentric rod passes below the frame in which the crank shaft &c., are fixed, and is connected to the file frame by the bar screwed thereon. The file frame is hinged to the bed on which it rests at the points 3 and 4, and after being raised by the action of the eccentric is lowered for the forward stroke by means of a spring R or its own weight. In order to feed the file into the saw or the saw up to the file, the rock-shaft *c* is connected with the crank shaft by means of a secondary crank *b* and its connexions. This operates the pawl P and ratchet wheel W in a well known manner.

Claim.—The use of the eccentric *e* and the various parts co-operating therewith for raising the file as it recedes; the lever I, plate H, and their connexions for feeding the saw through one or more teeth, and for regulating the depth of the cut and its angle; all arranged and constructed substantially as herein shown.

No. 15,940.—Horace R. Howlett, assignor to Himself and A. W. Goodell.—*Improvement in Filing and Setting Saws.*—Patented October 21, 1856.

The gauge B placed between two plates forming the stock A is formed of a bar *a*, which may be set as shown in figure 1. The frame C^1 contains the file D, which is pressed down by the spring *k*, and allowed to turn with the rod *f*, its position being determined by the gauge B.

The triangular guide plate C may be adjusted by the set screw *l*, and be moved obliquely in the stock A, thereby determining the depth and length of the teeth of saw E.

The setting of the teeth is done by the die H, provided with the set screw *q*, connected with the lever *g*, as shown in figures 1 and 2.

Claim.—The file frame C attached to the stock A, in connexion with the gauge B, guide C, and lever G, with saw-set H attached; the whole being arranged, as shown and described for the purpose specified.

No. 15,773.—Albert S. Nippes.—*Improved Machine for Grinding Saws.*—Patented September 23, 1856.

A revolving motion being imparted to the screw-shaft J, the shaft L is caused to turn, and causes the face-plate E to revolve on the pillar-block D of the carriage C, which latter is caused to advance towards the revolving grinding-stone H; the saw-plate being fastened on table E. As the carriage advances, the roller *i* presses down the pattern X, which rocks the shaft T, and the latter being connected by means of cranks V and rod W to shaft U, shaft U will rock in the same manner as shaft T, causing the cams *d* to turn with them, which thus raise the table C. This arrangement serves to compensate for the wearing off of the grinding-stone during the time of grinding from the circumference to the centre of the saw-plate.

Claim.—In combination with the face-plate of a machine for grinding saws, a guide pattern or former, which can be used for giving shape to the saw-plate, by causing the face-plate or stone to approach or recede from each other to vary the bevel or thickness of the saw-plate, or to compensate for the wearing away of the stone, whilst acting on said plate or both, substantially as described.

No. 16,223.—Emanuel Andrews.—*Improved Machine for Grinding Saws.*—Patented December 16, 1856.

The saw is attached to the sides of the face-plate E, and secured to it by collar *c*. Motion being imparted to shaft D, the grinding-stone B is caused to revolve, and thus to operate on the sides of a circular saw. The stone B is mounted on a frame *a*, which has a pivot on its lower end to turn upon; and by adjusting the set screws *b*, the stone B can be set so that a small portion of the grinding surface will ope

rate upon the saw. The transverse motion of the stone B on the sliding rods j^1 is produced by a belt running over the conical pulley N, whence motion is transmitted to pulleys N^1 and K, and to screw O, passing through a nut in the piece P.

Claim.—1st. The manner described, or its equivalent, for decreasing the transverse motion of the stone when I wish to grind the most, as at the outer edge of the saw, and increasing the same when I wish to grind less, as at the centre of the saw, as set forth.

2d. The manner described, or its equivalent, for the adjustment of the stone, for the purpose of using a portion of the grinding surface of the same at pleasure, or all the grinding surface if desired, as set forth. Grinding-saws to a taper, as described, by means of the adjustable face-plates, in combination with the pivot boxes O^2, and sliding and yielding guides M and O^1, as set forth.

No. 14,413.—Theodore Sharp.—*Improved Method of straining Mulley Saws.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—Straining the saw by attaching its ends to a pivoted elastic bar E^1, substantially as shown and described.

No. 14,480.—Hiram Wells.—*Improved Method of suspending Circular Saw Spindles.*—Patented March 18, 1856.

This improved method of sustaining the saw spindle A will not only permit the lateral play that may be necessary to accommodate the saw to the lateral spring of the log, but the weight of the spindle will aid in restoring the saw S to its normal position.

Claim.—The arrangement and application of the eccentrics *c c* with respect to the shaft boxes B B and their stationary and adjoining screw-pins D D, substantially in the manner and for the purpose as described.

No. 14,485.—J. Z. A. Wagner.—*Improved Method of adjusting Reciprocating Saws.*—Patented March 18, 1856.

The gate E has two cross pieces *b b* at its upper and two at its lower end. The nuts *c*, which are allowed to slide laterally between these pieces, have straps *d* attached to them, between which the saws H H are strained.

The inner ends of each pair of screw-rods I lock into each other so as to become connected. By operating the arm Q the rods may be detached or connected.

Claim.—1st. Hanging the saws H H within the saw-sash or gate E on or to nuts *c c*, which work, or are fitted, on right and left screw-rods I, substantially as shown, for the purpose specified.

2d. I claim operating or adjusting the saws H H laterally in the saw-

sash or gate E by means of the pinion K placed loosely on the shaft J, so that said shaft may work freely through it, the shaft J having bevel pinions *e e* at its ends, which pinions gear into corresponding pinions d^1 at the outer ends of two of the screw-rods as described.

3d. I claim connecting and disconnecting the screw-rods I by means of the levers O O P and arm Q, arranged substantially as shown and described for the purpose specified.

No. 14,930.—John Robingson.—*Improved Method of Hanging Reciprocating Saws.*—Patented May 20, 1856.

The arm G is attached to a shaft *a*, the ends of which are fitted in bearings at the end of frame E. The upper end of the pitman H just above the shaft *b* is pivoted to plate I, which is attached to the lower end of the saw J.

By this arrangement the teeth of the saw as they perform their work recede, and the saw-dust is allowed to pass freely out of the kerf.

The inventor says: I do not claim merely attaching the lower end of the saw to the pitman, for that has been previously done in cases where the saw has been placed in a sash.

But I *claim* attaching the upper end of the saw J to the pendant or arm G, which is connected to the upper frame E, and the lower end of the saw to the pitman H, just above the point of connexion of said pitman with the lower frame E, substantially as herein shown and described, for the purpose specified.

No. 15,890.—John H. More.—*Improved Method of Hanging Reciprocating Saws.*—Patented October 14, 1856.

The nature of this invention will be understod by reference to the claims and engraving.

Claim.—1st. The hinged-jaws J J and screws *e e e e.*

2d. The finished faces on the jaws J^1 J^1 of the fixed body of the stirrup, in combination with the hinged-jaws, and for the purposes set forth.

No. 16,062.—George D. Lund.—*Improved Method of Hanging Reciprocating Saws.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Placing or fitting the rod or shaft C, to which the lower strap or socket D is attached, loosely in the slides B B, substantially as described for the purpose specified.

No. 16,295.—John Stowell.—*Improved Method of Hanging Reciprocating Gig-Saws.*—Patented December 23, 1856.

As the saw J is operated, the two levers E work parallel with each other, and the saw is allowed to work in a vertical right line in

consequence of the oscillating forward and backward movement of the frames C D, said frames compensating for the curvilinear movement of the levers E.

The inventor says: I do not claim attaching the ends of the saw to the two levers E E, for this device or its equivalent has been previously used.

I *claim* attaching the saw J to the two levers E E when the axes of said levers are fitted in an oscillating frame D, the journals of which are fitted in slots or grooves, or in a swinging frame C, to allow a forward and backward movement of the frame D, as described.

No. 15,220.—E. S. Clapp.—*Improved Method of Framing and Straining Wood-Saws.*—Patented July 1, 1856.

By moving the upper part of the bow E towards D the saw will be strained, the rack G catching on the edge of the slot in the plate *f*.

Claim.—Constructing the saw frame A with the two bows D E connected by a hinge *a* and having the rack G attached to the bow E, the rack passing through a slot in the bow D, the saw C being connected to the bows E B and the straining rod F connected to the bows D B, substantially as shown for the purpose specified.

No. 15,082.—M. L. Parry.—*Improved Method of Repairing Circular Saw-Teeth.*—Patented June 10, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The stop or mandrel E, fitted within an adjustable socket *e*, which is attached to an arm D, the arm being secured to the frame A; the above parts being arranged as shown for the purpose specified.

No. 14,101.—A. Kendall.—*Shingle Machine.*—Patented January 15, 1856.

The rods *e* connect the cranks of a rock-shaft with the two right angled levers *f g h* and *i* at e^1. The levers have their fulcra at h^1 i^1. The bar *j* is attached by a pin joint to lever *g*, and the knife levers *k* and *l* and bar *m* are connected by a pin joint to the lever *f* and knife levers *n* and *o*. The bar *p* is connected in like manner to shaft *h*. Knife levers *o* and *t* and bar *u* are connected in the same manner to lever *i* and knife levers *v* and *w*. From this it will be seen that, as the rod *e* is advanced, the knives of the set M^1, as well as of the set M, are caused to approximate so as to shave the shingles to the desired taper, which may be altered by adjusting the sweep of the rock-shaft cranks.

The drivers E E^1, connected to the carriage by the rods F F F^1 F^1, are provided with wrists, which slide in grooves or slides N N^1 N^2 N^3.

The upper and lower drivers move simultaneously, and while the upper driver is in the slide N^2, the lower driver is in the slide N^1 and

passes along to the tumbler P^1, which the driver turns down and slides over, but, as soon as the driver has passed over, it moves back in place by the action of the spring Q turning the arm Q^1, which latter is on the tumbler-shaft. When driver E returns to E^{11}, the lever R is raised to R^1 by the action of the end D^2 of the carriage on the arm R^2; by this means the driver is raised up to the slide N^2; at the same time the lever is raised, the arm D^3, which extends from the carriage, passes over the end R^3 of the lever, by which means the lever is retained in the position indicated at R^1, after it is first raised there, long enough to allow the driver to enter the upper slide N^1.

The broken lines represent the pieces of wood.

Claim.—1st. The herein described arrangement of devices for operating the approximating knives whereby the shingles are shaved to the desired taper, according to the length of the shingle.

2d. The manner of raising the driver E from the slide N to the slide N^1 by means of the carriage D acting on the arm R in combination with the lever R^1 and arm *r*, and the action of the arm D_3 on the end R^3 of the lever R, as herein before described.

3d. The tumbler P^1, as combined with the springs Q Q and arms Q^1 Q^1, operating in the manner and for the purposes set forth.

No. 14,103.—Samuel M. King.—*Shingle Machine.*—Patented January 15, 1856.

The bolts are placed inside the boxes J, the bottoms L of which can be set by screws K according to the required thickness and taper of the shingles. I are the knives.

Claim.—The combination of cast iron boxes J with adjustable bottoms L and sliding lids H, operating with the knives in front alternately by connecting rods G, so as to cut and regulate the size and taper of the shingle, substantially as described.

No. 14,347.—Ranson Clifford.—*Improved Shingle Machine.*—Patented March 4, 1856.

The driving-bars G G, fastened to and carried by the endless chains H, are moved by the said chains along the bed-plate B and beneath the rifting knife D, until a piece is split off from the under side of the block C. The block is then carried back by hand and placed upon the bed-plate ready for the next driving-bar. When the piece has been forced nearly through the shaving knives K K^1, the uprights L L come in contact with cross-bar M, by which means the driving-bar is turned underneath so as not to interfere with the knives. As the driving-bar is forcing the shingle through the knives it strikes the end of the two levers N N, and carries them along with it until it has driven the shingle its whole length through the knives; and thus the chains Q are made to wind about pulleys P, drawing the horizontal sliding-rods S, and causing the knife K to approach the knife K^1 by means of the arms T,

which are pivoted to rods S, and to which arms the knife K is attached. Thus is produced the taper of the shingle.

Claim.—1st. The combination of the driving-bar attached to and moved by endless chains, and the lever or levers N N, for the purpose of communicating motion to the shaving knives, substantially as described.

2d. The construction of the driving-bar, with the upright arms L L, carried by the endless chains and chain gears, and its combination with the cross bar M and knives K K, in such a manner that the driving-bar shall be turned on its axis and made to run clear of the knives just before it reaches them, substantially as herein described.

No. 14,765.—John B. Evins.—*Improved Shingle Machine.*—Patented April 29, 1856.

The block X from which the shingles are cut is placed upon the bed-block G, and by depressing the outer end of the lever J the knife E is brought down over the edge of the blocks with a drawing cut in consequence of the bolts *b b* fitting in the slots *a a*, which give an oblique motion to the knife frame, and cause the knife to cut diagonally with the grain of the wood. The panel E of course rises and falls with the knife frame C, as they are connected by the pivot *c*, and the knife frame oscillates on this bolt.

The inventor says: I do not claim the reciprocating knife and panel, for they have been previously used for the same purpose; but I *claim*, first, the combination of the knife frame C and panel frame D, when constructed, arranged, and operating conjointly, as herein shown and described.

2d. I claim operating the knife and panel frames C D, by means of the lever J, when connected to the two levers K K^1, so that two movable fulcrums are obtained; the pitman being attached to the lever between the fulcrums, for the purpose specified.

No. 14,914.—Edward Hedley.—*Improved Shingle Machine.*—Patented May 20, 1856.

This apron is composed of two leather bands, which play over four pulleys D D. The bands are covered and connected by a series of iron plates *c c*. On the underside of each plate are cast three metal ribs, one on the centre and two near the edges of the plate. These ribs are double and wedge-shaped, so as to give the proper taper to the shingle by running on solid bars of iron placed under the ribs.

Claim.—As new the formation and invention of the endless feeding bed of bevelled slats *c c c*, so as to give the required taper to the shingle as it passes beneath the knives of the revolving arms.

No. 14,977.—Harvy White.—*Improved Shingle Machine.*—Patented May 27, 1856.

The shingles are dropped in front of the knives G G, when the carriage E is run back; the butt of the shingle falling between two inclined

plates *b b*, which bring it into the centre of the carriage. The plates H H are drawn apart by means of rods I I, to allow the shingle to fall between them. The shingle is then carried forward until the edge strikes the standard *k*, which stops it, while the carriage carries the knives across each side and shave the shingle smooth; and as the knives leave it, it is seized by the spring forcep L^1, which removes the shingle when the carriage is run back, and drops it beyond the end of the frame A.

Claim.—The plates *b b*, so arranged as to bring the butt of the shingle into the centre between the knives and hold it there while it is being shaved.

I claim the spring forceps, so arranged as to seize and remove the shingle after it is shaved.

No. 15,081.—Jason Palmiter.—*Improved Rotary Shingle Machine.*—Patented June 10, 1856.

The blocks A^1, shown in dotted lines, from which the shingles are sawed, are secured by the dogs T to the several carriages on the wheel G. As the wheel G rotates, the saw C cuts the shingles from the blocks, and the lever P, of each side or face of the wheel, as said sides approach the saw, is operated by a projection U on the frame A, and the sliding-bars O are actuated, and the pawls *b b* turn the ratchets N, and the pinions M M move the racks K K and the carriage J and block towards the saw.

Claim.—Placing a series of carriages J on the sides or faces of a polygonal wheel G, and giving said carriages the proper feed motion by means of the racks K, pinions M, ratchets N, and sliding-bar O, with pawls *b* attached; the above parts being arranged as shown, and in connexion with the circular saw C, substantially as described for the purpose specified.

No. 15,302.—Adrian V. B. Orr.—*Improved Shingle Machine.*—Patented July 8, 1856.

When the reciprocating plate E is set in motion by means of handle O, pinion N, and driver M, and connecting rod P, the bolt resting on said plate, with its end against the stop D, will have its under surface made smooth by the stroke of the knife S (figs. 1 and 2) passing under it. The froe I will follow and split from the bolt a piece of the necessary thickness; this piece drops off on the inclined face *s s*, and rests with its end on the offset R. The motion of the plate being now reversed, the piece is pushed under roller H and shaving knife F, by means of which its upper face is shaved and tapered as desired. The teeth of the arm J of the lever K now seize it and hold the shingle until the plate passes from under it and its forward motion allows it to drop on the shoot L.

The inventor says: I am aware that reciprocating plates have been constructed with tapering faces or recesses to give the necessary tape

to a shingle in carrying it under a stationary knife, and I am also aware that froes or riving knives have been used which were moveable. I do not claim either of these devices separate from the combination in which I use them. But I *claim*, first, combining, in a single reciprocating plate E, a straight face *a a*, a tapering face *s s*, with an offset R between them, and a movable froe I, being combined for the purposes specified and constructed substantially as described.

2d. I claim the compound lever K, constructed as described, or its equivalent, for the purpose of taking the finished shingle off the plate, as already set forth.

No. 15,749.—David D. Tupper.—*Improved Shingle Machine.*—Patented September 16, 1856.

The cutter cylinder runs in boxes *p*, which slide in slots in the standard L, aud to which are also pivoted at *s* the plates *r*, which carry the pressure rolls M. To the lower plate *r* is secured the bent arm N, the extreme end of which carries a rack-bar P that engages with the cogged wheel *t*. This wheel is turned a quarter of a circle, more or less, alternately, in one direction and the other, each time the carriage advances, and a cut is made; and thus the rolls receive the required inclination upon each side to enable them to bear upon the inclined face of the bolt. The arm N is locked and held stationary while the cut is being made, by the spring dog *z*, that falls into one of the two notches in the frame work.

Claim.—The described method of arranging and operating the cutter-head, whereby the pressure rolls are inclined, to correspond to the inclination of the face of the bolt, for the purposes set forth.

No. 15,747.—Philo O. Sherwin.—*Improved Shingle Machine.*—Patented September 16, 1856.

The timber is held on the face side of the block G by means of dogs or sets. The set-wheels I have an onward movement with the carriage *g*, and are provided with teeth at unequal distances apart, and so arranged that one pawl will catch the tooth over a long distance in one wheel, while the other will catch the tooth over a short distance in the other wheel, and thus the timber will be fed to the saw *o* at an angle sufficient to form the thick and thin end of the shingle. The stops K, which are adjustable on the frame by means of the slots *y*, act upon the teeth *t*, and serve to stop the carriage at the precise point, so as to prevent the jar in the frame experienced heretofore in machines of this construction, which caused the timber to be fed unequally to the saw, and thus produced shingles of unequal thickness.

Claim.—The stops K K, in combination with the notches or teeth *t t* on the set-wheels, arranged and used for the purposes and substantially as set forth.

No. 14,792.—Charles F. Beverly.—*Improved Rotary Shingle Machine.*—Patented May 6, 1856.

The inventor says: I do not claim the knives or cutters E E secured to the wheel A as shown, irrespective of the manner of attaching said knives or cutters to the wheel.

But I *claim* securing the knives or cutters E E to the wheel or disk A, by means of the bolts *i i* which pass through the knives or cutters near their cutting edges, and through the ears *h* at the ends of the plates *g*, the heads of said bolts being bevelled; and employing the screws *j* for securing the ears to the bars *e* attached to the wheel or disk; and adjusting the knives or cutters by means of the screws *k k* which pass through the bars *e*, substantially as shown.

I further claim the bar H attached to the elastic bars J J by rods *l*, which work in slotted rails G G at the ends of the platform or bed F, the lower ends of the bars J J being connected to a rock-shaft K, having a treadle L attached to it, and against which treadle a spring M acts for the purpose of feeding and properly presenting the block to the knives or cutters.

No. 15,728.—John Broughton.—*Improved Feed-Motion for Shingle Machines.*—Patented September 16, 1856.

The block *c* of which the shingles are to be cut, being secured between the holding dogs M, is shoved towards the disk-wheel D until the block *c* touches the face-guide G, the wheel D rotating in the direction of the arrow; the face-guide at the ends where it meets the back of the knives F is flush with the faces of the knives, and from these points it gradually recedes until its face at the opposite ends near the cutting edges of the knives stand back from the faces of the knives the distance of the thickness of a shingle at the middle of its length. This, combined with the tilt motion given to the bed H on its fulcrum *a*, by means of the arm I, roller J, and cam K, gives the thickness and taper to the shingle.

The inventor says: I do not claim the disk-wheel D with knives attached, for that device has been previously used.

But I *claim* the disk-wheel D with knives F, face-guide G, and face-cam K, attached and used in connexion with the vibrating bed H, the whole being arranged and operating as shown, for the purpose set forth.

No. 15,756.—George Craine.—*Improved Method of Feeding and Sawing Shingles.*—Patented September 23, 1856.

The dogs *l* serve to hold the bolt during the process of cutting, and the saw B enters the bolt near the centre in length of the shingle and cuts towards both its ends at the same time, by which operation the shingles are delivered with a perfectly smooth surface. The bolt is fed to the saw by means of the screw H operating upon tooth *c* of the hinged piece G, which, being fastened to the carriage F, moves said

carriage and bolt towards the saw B; as the pinion L is rotated by pinion E, the latter receiving its motion from the driving shaft D, and as the lever *v* strikes against the projection *z* it is turned on its fulcrum *w*, and the pawl *s* is disengaged from the ratchet *u*, and the weight R causes the drum P to rotate and with it the worm-wheel O, which operates the racks *q*, and by which arrangement the bolt is fed to the saw, so as to take the shingles therefrom "butt and point" alternately.

Claim.—So arranging the carriage, with regard to the saw, as that the saw shall enter the bolt at or near the centre in length of the shingle, and cut towards both its ends at the same time, in manner, and for the purpose set forth.

Also, a device for feeding the bolt to the saw so as to take the shingles therefrom "butt and point" alternately; the worm-wheel *o* working into the double-racks *q q*, in the manner set forth.

Also, the combination of the hinged-piece G, with its pin *i* and feeding tooth *c*, and the ledge *f* and trigger *g*, on the fixed piece M, for the purpose of connecting and disconnecting, at proper times, the carriage with the feeding-shaft H, so that it may traverse on its ways, as set forth.

No. 15,720.—Lewis A. Goodsell, assignor to Himself and Daniel H. Holt.—*Improved Shingling Bracket.*—Patented September 9, 1856.

The braces E and F are pivoted to the base A, which is fastened to the roof by means of the claws B; the braces can be adjusted by means of catches, the dovetailed tongue G, and the wedge J; the planks to support the workmen in shingling a roof are laid on the brace E.

Claim.—A combination of the foot or feet D D, the claw or pin-pointed base, and the hinged braces E F, made fast and adjustable to each other by the catches and dovetail-tongue receiving the wedge J; the whole constructed, combined, and operating as set forth.

No. 16,121.—Edward Julier.—*Improved Machine to aid in Making Spokes by Hand.*—Patented November 25, 1856.

A roughly hewn piece of wood being attached to the chuck *i* at one end of fig. 2, and the other end being held by the centre-screw V, the pawl *i s* is temporally thrown off the ratchet-wheel *k*, the stop f^2 brought down, and its pin g^2 inserted into one of the four holes of the ratchet-wheel *k*. By resting an ordinary drawing-knife on the gauge $z\ z^2$, and operating the same, one side of the blank is shaved, and the other three sides are shaved in a similar manner, the pin g^2 being inserted successively into each of the holes of wheel *k*. The stick being squared, the pawl *i s* is brought again in gear with wheel *k*, by which the pattern-cam s^2 is turned; and as the knife-rests $z\ z^2$ rest on said cam by means of saddle a^2 they are raised and lowered according to the shape of cam s^2, and the shape of the spoke must be exactly the same as that of the forming-cam s^2.

Claim.—The construction and arrangement of the pattern-cam gauge

device s^2 s^2, the jointed-lever device m^2 m^2 k^2, the collar-shank f^2 h^2, and spring-pawl l^2, when operated by the pedal P^2, or its equivalent, together and with the stop or dog f^2 g^2 and ratchet K, in the manner substantially as described, or in any equivalent manner.

Also, the graduating straddle-gauge *w w w* w^2, and hinged or jointed forming gauge rest *z* z^2, with the graduating set-plate and yoke devices a^2 b^2, &c., with the knife-shields or buffer-heads *g g u u*, substantially as described and shown.

No. 14,718.—Christian Haas and John C. Noll.—*Machine for Driving Spokes.*—Patented April 22, 1856.

The hub-bed is adjusted to the length of the hub by moving timber h^1 along bar *t*, and securing said timber by screws *m*. The spoke S is secured between boxes *s*, and its lower end inserted in the mortise of the hub, which is uppermost, the guide *r* being elevated for that purpose, by passing along its attachment *q*. The power is applied to the wheel W^1, which lifts and releases the driver *a* by means of arm *d*, the spoke-guide slipping down the guide attachment as the driving proceeds.

The inventors say: We make no claim to the driving arrangement separately considered; but we *claim* the adjustable hub-bed and spoke-guide, in combination with the driving apparatus, the several parts being constructed and arranged substantially as and for the purposes set forth.

No. 14,018.—Elijah Holmes.—*Spoke-Shave.*—Patented January 1, 1856.

The two ends of the knife A are formed with chamfers *a a*, and the stock B is formed with corresponding dovetail-sockets *b* to receive these chamfers. A set-screw *c* is extended through one of these sockets and the stock B, so that its head shall overlap one of the chamfers *a*. When the nut *e* of the set-screw *c* is turned, it will force the knife longitudinally away from the set-screw and hard into the opposite socket *b*, so as to confine it firmly in its place.

Claim.—I do not claim the manner of fastening the knife, viz: by a single screw-clamp, chambers, and sockets; but what I do claim is supporting the ends of the knife, or plane, on shoulders inclined or arranged with respect to the bearing of the stock, substantially in the manner specified, and so as to enable the distance of the cutting-edge of the knife from the said bearing surface to be changed, in the way and for the purpose as explained.

No. 14,635.—Martin Snow.—*Improved Spoke-Shave.*—Patented April 8, 1856.

Fig. 1 is a near edge view of the knife; fig. 2 is a transverse section; and fig. 3 represents an edge view of a shave with said knife applied to it.

The inventor says: I am aware that it is not new to hold an article in place by means of a spring, therefore I do not claim such; my invention relating to a new or improved manufacture, which, of itself, is a new article in the market, and, from its peculiar construction, is rendered one which is not only very simple, but one of great utility.

But I *claim* my new or improved manufacture of a heel, or spoke-shave knife, made of one piece of steel, and with both of its starts A A bent or formed in the shape of springs, in the manner specified.

No. 15,446.—Augustin D. Waymoth.—*Improved Machine for Manufacturing Spools.*—Patented July 29, 1856.

The boring-carriage C is moved on its parallel ways *a a* by pinion *d* of shaft *b* meshing into rack *e*, the shaft *b* being turned by means of the wheel *c;* the tool-carriage H, which can also be moved on the ways *a*, bears the socket-head I of a rounding cutter *f;* the head is made trumpet-shaped for the reception and guidance of the piece of wood to be turned, the mouth terminating in the tubular rest e^1 of the diameter of the cylinder to which the piece of wood is to be reduced. The tool-holder K, which holds the body-tool *k* and severing-tool *i*, can turn on the journals *g g*, supported by bearings *h h*, and can be made to vibrate on the journals *g*. It can be operated upon by means of bent lever L, rod *l*, and an arm extending outwards from the bent lever for the operator to act upon.

The inventor says: I do not claim combining one or more cutters with a sliding-carriage made to slide horizontally and at right angles to the axis of the work to be turned.

But I *claim* combining the rounding, severing, and body-cutters with a carriage made to slide between the chuck and boring-carriage, and in line with the latter, and so as to be moved towards the chuck by the boring-carriage, while it is moved towards the work, in the manner set forth.

I also claim arranging the body and severing-cutters, and combining them with the cutter-carriage by means of a turning-holder K, as specified, whereby the said cutters may be made to operate and be put in operation by means substantially as explained.

No. 15,757.—A. H. Crozier.—*Improved Stave-Jointer.*—Patented September 23, 1856.

The staves to be jointed are placed upon the plates G, and are kept against the rim of the wheel A by pressing the frames *d;* and as the rim of the wheel is dish-shaped, the staves will be jointed with more or less taper, according as the plates G are adjusted higher or lower, which adjustment is obtained by operating the set-screws *c c b*.

The inventor says: I do not claim the wheel A, for that has been previously used.

But I *claim* the wheel A, with cutters D attached, in combination with the adjustable gauges or plates G, arranged as shown and described, for the purpose set forth.

No. 16,095.—Barnet McKeage.—*Improved Stave-Jointer.*—Patented November 18, 1856.

The stave to be dressed being placed upon the carriage C, motion is imparted to the latter; and as it is moved along, the pattern plates *m* move in contact with the edges of the jointing-disks E, or against suitable projections on their carriages G, and thus separate said disks by their wedge action till one half of the length of the stave is jointed. During the last half of the motion of the carriage, the pattern-plates *m* taper together, and thus leave the jointing-disks to approach gradually. By means of this arrangment, the cutters *c* of the jointing-disks dress the staves to the exact form presented by the pattern-plates *m*.

Claim.—The device described for automatically jointing staves of different widths to the proper bulge, consisting essentially of the pattern-plates *m m m m* and the guiding slots *n n p p*, or their equivalents, respectively set at such different angles as to separate the two ends of said pattern-plates unequally and exactly in proportion to the bulge required, arranged and operating substantially as specified.

No. 15,285.—J. K. Derby.—*Improved Stave-Jointer.*—Patented July 8, 1856.

The stave K to be jointed is clamped upon the bed G; the edges of the stave project beyond the sides of the bar E, so that the saw C may act upon the edges of the stave. As the carriage D is shoved along on the frame A, the slotted plate J will tilt or vibrate the bed, the front end of which will be depressed at the commencement of the operation, the plate J gradually raising it to an elevated position; the front end of the bed being elevated to its extreme height at the completion of the forward stroke of the carriage D. This tilting of the bed gives the proper bilge to the stave, as the bed and stave being necessarily at one side of the saw are placed obliquely to the plane of rotation of the saw, and the ends of the staves will be thrown across the saw, so that the edges of the stave will be cut taper from the centre. When one edge of the stave is sawed, the bed G is placed at the opposite side of the saw by turning the bar E, and the opposite edge of the stave is sawed.

Claim.—The vibrating or lifting bed G, fitted or pivoted to a bar E within the carriage D, as shown, the bed being operated by the pattern I, or its equivalent.

No. 14,299.—George W. Livermore, assignor to The Livermore Manufacturing Company.—*Improved Stave-Machine.*—Patented February 19, 1856.

Power being applied to the eccentric rods *g g*, the jointers D are vibrated up and down, and the saws *a*, the crozing cutters *c*, the chamfering cutters *d*, and the cutters *e* for trimming the edge of the croze, are caused to revolve by pulleys and bands not represented in the engravings.

The staves are previously shaped in the grooved rollers patented by the inventor in 1854. The operator, laying hold of handle f^2, opens the clamp, and inserts a stave; its upper end resting against the stationary stop m^2 attached to the frame work, the position of the stave in the clamps being otherwise regulated by the stops h^2. The handle f^2 is then depressed, and the stave is held firmly in the clamp. The operator, still holding by this handle, revolves the clamp around the axis of the shaft H; the stave being brought to the desired length, and its two ends dressed as it passes the revolving saws and cutters. The stave is now borne up against one of the jointers, by which one of its edges is jointed, the adjustable stop w^2 serving to arrest the motion of the clamp, and bring all the staves to an equal width. The stave is then swung round to the opposite side of the machine, and its other edge is jointed; the clamp is then opened, and the finished stave falls out. The jointers D move in a vertical plane, passing through the axis of shaft H; and as the staves are brought to the exact curve, both longitudinally and transversely, which they are to occupy in the cask, it is evident that each stave will be jointed in a plane passing through the axis of the cask, so as to form a tight joint.

Claim.—The within described machine for jointing, crozing, and chamfering staves, consisting essentially of the clamp for holding the stave, the jointers D, and the crozing chamfering cutters, combined and operating in the manner substantially as herein set forth.

No. 15,429.—John McMurtry.—*Improved Stave-Machine.*—Patented July 29, 1856.

The staves are fed into the machine at the rear end, and pass between the cutter-heads G, and are held down firmly by the pressure-rollers R R. The end of the stave is presented to the cutter-heads G just as the rollers of the chain carrying the stave commence ascending the bilged part of the ways *m m*, and, as they proceed, continue to rise until they reach the centre of the bilged way, and also the centre of the stave; and then they commence descending until they reach the bevel part of the way, and then passing under the surface cutter-head *f f*, the faces of the spoke are planed, and the spoke is ultimately delivered at the front end of the machine.

Claim.—The combination of the endless chain, or its equivalent, with the undulating bed or bearing, and the combination of these two devices with the planer for dressing the outer surface, and bevelling the two edges to suit any size cask required, in the manner substantially as set forth.

2d. I claim the obtuse joint in the endless chain B B at the carrying wheel, for the purposes specified.

No. 15,423.—Charles Hoyt.—*Improved Devices in Stave Machinery.*—Patented July 29, 1856.

The staves T, shown in dotted lines, are placed one at a time upon the strip D; and the lever B being depressed, the two plates G G are

moved latterly inward, and adjust the stave T precisely in line with the feed-rollers H H. The pin *p* on the eccentric *o* acts against the lower part of the lever F, and the feeding-block E is thrown forward, and the stave T passes precisely at the proper time between the feed-rollers H H and between the jaws I I, the stave expanding the jaws and causing the two frames J J and cutter-heads *s s* to move a little outward at equal distances from the strip D; the cutters on the heads *s s* then act upon the end of the stave one at each side; the frames J J and heads *s* being held permanently by the wedge-shaped bars p^1 p^1 are moved upward by the eccentric *o*, and the bars *q q* and cutter-heads *s s* are gradually thrown outwards and expanded till the centre of the stave reaches the point precisely between the two heads. The heads *s s* are then thrown gradually inward by the springs P, for the wedge-shaped bars p^1 begin to descend till the stave has entirely passed between the heads; the stave then passes between the dressing cylinders R R, and is discharged from the machine by the rollers *s s*, the stave being cut with the swell or proper taper.

The inventor says: I do not claim the cylinders R R for dressing the stave, for they have been previously used.

But I *claim* 1st. Adjusting the staves T in line with the feed-rollers H H and jaws I I, by means of the sliding bed or plate C and laterally sliding-plates G G, arranged as shown and described.

2d. I claim the feeding-block E, when operated by the spring *e*, lever F, and eccentric *o*, substantially as shown, for the purpose of feeding the staves to the cutters.

No. 14,136.—Joseph W. Killam.—*Machine for Dressing Sticks to Polygonal Forms.*—Patented January 22, 1856.

The engravings represent, by broken lines, a square stick *s* as being operated upon by the machine. It will be seen that the four sides of the stick will be planed straight and out of wind at one operation; in case other polygonal shaped sticks are to be planed, the heads I K, bed B, and guide-plates L, are made of a corresponding form, so that all the sides will be planed at one operation.

The inventor says: I do not claim any of the parts of the above described machine separately; but what I *claim* as new, and desire to secure by letters patent, is—

Planing at one operation sticks of timber of polygonal form straight and out of wind, without confining the same to a carriage, by using the combination and arrangement of the feed-rollers F F^1, and the bed B, and the guide-plates L, and weights *p*, with the rotary cutter-heads I K, as shown and described.

No. 16,041.—Alfred Tippett.—*Improved Tool for Tenoning, &c.*—Patented November 4, 1856.

The chisels C are attached to the stock A, and their distance from each other can be regulated by means of set-screw *b*. The cutters C

can be adjusted in such a manner as to be capable of cutting a long or short wedge-shaped tenon.

Claim.—So making the chisels adjustable in the stock as that they may be made to cut also a dovetail tenon with the same tool, and without reversing the same, and so that said tool may be used in any ordinary mortising machine, and thus avoid the expense of two machines; the whole being arranged specially as set forth and for the purposes described.

No. 15,572.—John Potter.—*Improved Tenoning Machine.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—The combination of the revolving knife cutter-heads *c d* and rotating saws *a b*, when these devices are arranged in relation to each other and for operation together, as shown and described, causing the knives of the cutter-heads to relieve the saws from binding, and insuring many other advantages in the cutting of the tenon, as specified.

Further, I claim the alternate arrangement on the cutter-heads *c d*, when operating in specified relation to and connexion with the saws of the square and level nosed knives or cutters *s* s^1, for action with each other and the saws, in the formation of the shoulder, as set forth.

No. 14,289.—John H. Palmer.—*Machine for Tenoning Window-Blinds.*—Patented February 19, 1856.

The carriage M, with the slats upon it, is pressed by hand in the direction of arrow *a* until it arrives in the position represented in figure 2. The outer ends of the cutters K cut the slats the proper length, and the two cutter disks are pressed inwards by the cams G G operated by belts *b b*. As the cutter disks are pressed together, the concave edges of the cutters cut the tenons on the slats, the tenons entering the holes *e;* when the prominent parts of the cams have passed the ends of the arbors F F, the disks are thrown back by springs I I, and the carriage is moved back for the reception of new slats.

The inventor says: I do not claim the disks J J and carriage M, in themselves considered, nor when operating conjointly, irrespective of the peculiar manner of operating the disks, as herein described.

I *claim* operating the disks J J, to which the cutters K are attached, by means of the cams G G, arranged substantially as shown, for the purpose specified.

No. 14,220.—B. J. Barber.—*Improved Method of Tonguing and Grooving Tapering Boards.*—Patented February 12, 1856.

As the board (represented in the engravings by broken lines) is fed along on the bed G, the bed can be gradually raised by revolving the

screw N, worm-wheel L, pinions J J, and racks I I, (these latter being attached to bed G,) so that the taper of the board is compensated for, and the cutters are brought gradually nearer together; it being understood that shaft D^1 with its cutter-head F^1 is connected to bed G, and moves with it. The feed-roller E is pressed upon the board by a spring F.

Claim.—The movable bed G, with shaft D^1 and cutter F^1 attached; said bed being operated substantially as herein shown and described for the purpose specified.

No. 14,173.—Elbridge Webber.—*Improved Device in Tree-Nail Machines.*—Patented January 29, 1856.

One end of the piece of wood from which the tree-nail is to be turned is secured in the square socket S, and the other end entered into the mouth of the box P, the guage-rod *g* being adjusted to give the requisite size to the tree-nail by turning set-screw *h*. The socket S is then revolved, and at the same time the box P moved towards the said socket, when the cutters *c* and *d* will give the proper form to the tree-nail as it passes through the box. The open mouth of the box admits of the tree-nail being turned so that any curvature of the block will be followed, and the tree-nail turned without cutting across the grain. Fig. 1 represents part of a plan, and fig. 2 a vertical section of the machine.

The inventor says: Disclaiming the traversing of the forming box over the tree-nail, and the alteration of the size of the tree-nail by the expansion and contraction of the cutter-box, broadly considered—

I *claim*, as an improvement in tree-nail machines, the construction of the traversing forming-box of a flaring-mouthed bit-holder, combined with a slide *g*, whose upper surface composes so much of the form box opening as lies below the plane of the bit-seat produced, perpendicular to which plane said slide is adjustable for changing the size of the tree-nail, the operation being as herein set forth.

No. 15,913.—Simon Ingersoll, assignor to The Farmers & Mechanics' Manufacturing Company.—*Improved Method of Felling Trees.*—Patented October 14, 1856.

In operating this machine, the outer end of the frame A is placed against the tree U to be sawed down, the end of the frame being attached to a hook driven in the tree. Motion being given to the shaft G, the crank pulley D and pitman P give a reciprocating motion to the saw O, which is fed to its work by the spring R, the saw O cutting as it is drawn backwards. The feed is regulated by adjusting the lever S so as to increase or diminish the strength of the spring.

Claim.—Attaching the saw O to the bar M, which is connected with the levers J J L L and bars K I, as shown, the bar I being connected with the spring R; the whole being arranged as described for the purpose set forth.

No. 15,178.—George C. Ersham.—*Improved Method of Felling Trees by Saws.*—Patented June 24, 1856.

The collar A being fitted to the tree, the rack or rim C and cutter G are rotated around the tree by turning the crank shaft I, the chisel cutting into the tree circumferentially, and being gradually fed into it by the threads F *f* on the collar and chisel till the body of the trunk is cut through.

Claim.—The collar or band A, with annular rotating rack or rim C attached, and the chisel or cutter G fitted within the socket D, which is attached to the rack or rim, the chisel or cutter having portions of screw-threads *f* on its under side which fit between a spiral thread E on the collar or band A.

No. 15,310.—Elbridge Webber.—*Improved Turning Machine.*—Patented July 8, 1856.

The pattern is secured between the upper pair of centres C C^1, and the material to be turned between the lower pair. If the turning is to be performed from a reverse pattern, the frame A is left free to vibrate, the cutter-carriage is run towards it, and the protrusion of the gauge-rod G regulated so that the reverse form shall always press against its head. The weights *n*, by keeping the upper portion of the frame A drawn back, will insure a constant contact between the reverse form and the gauge-rod G. Motion is imparted to the main shaft, the cutter-wheel H, the reverse form, and the material to be turned; the gradual movement of the carriage E in the guides *v* causing the cutters to act upon the entire length of the piece to be turned. To reverse the motion of the carriage, that end of the chain *t* which has drawn the carriage is cast loose, and the other portion of said chain fastened to it.

The inventor says: I do not claim turning from a reverse pattern by suspending the pattern and turning centres in a vibrating frame; nor do I claim turning from a fac-simile pattern by means of a movable cutter-carriage; but I *claim* the arrangement of the frame containing the pattern and turning centres relative to the gauge-rod and cutter-carriage, whereby the said frame may be fixed and the carriage movable, or the reverse, so that either a fac-simile or a reverse pattern may be used without any change in the machine.

No. 16,308.—Joseph H. Goodell.—*Improved Machine for Cutting Veneers from the Log.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claims and engravings. Motion is imparted to the log-carrier B by means of the reciprocating driving-shaft *a*.

The inventor says: I am aware that the same character of double movement of the stuff to be operated on by a fixed knife, namely, combining with the curvilinear movement of the stuff a simultaneous lateral action or drawing stroke, by means of a hinged frame or table,

working in connexion with fixed guiding strips, is common to stave-cutting and other similar machinery; such, therefore, I do not claim.

But I *claim*, in veneer cutting, the combination and arrangement, shown and described, of the reciprocating log-carrying slide B, unsupported by trunnions or axles for its curvilinear play, with the fixed guiding strips *c* and stationary knife D, when said guiding strips serve as the sole guide to give to the log-carrier, operated as specified, its curvilinear movement, and simultaneous side action, as and for the purposes set forth; and whereby a steadier and more reliable double bearing is given to the log in its two movements, the log may be secured with facility to the carrier, and the driving power is communicated to the log in a more positive and direct manner for cutting with increased ease and precision thin veneers, as set forth.

I also claim hinging the knife-holding frame G to the main knife-feeding slide or frame H, for the easy and double adjustability of the knife, as shown and described.

No. 14,337.—Chauncy H. Guard, assignor to John A. Scroggs and Chauncy H. Guard.—*Improved Wheelwright Machine.*—Patented February 26, 1856.

The levers E E^1 are secured to the front ends of the shafts D D^1. The weighted outer end of arm E, acting through the medium of the lever E^1, the shafts D D^1, the toothed segments H H, and the toothed saddles I I, will force inwards both the shafts C C with sufficient force to drive the boring bits *e e*, when they are rotated, into the hub A.

Claim.—The combination of the boring and mortising shafts C C with the levers E E^1, through the medium of the toothed saddles I I, the toothed segments H H, and the oscillating shafts D D^1, or their equivalents, substantially in the manner and for the purpose herein set forth.

No. 14,577.—John Sitton.—*Improved Wheelwright Machine.*—Patented April 1, 1856.

Fig. 4 is a view of a clamp D; *n n* are arms which hold the clamp in position by being inserted into holes in the wheel B. The timber to be cut is secured to the wheel by means of the screw O.

a a (fig. 3) are guides between which the knife-slides *b b* work; *d* is a clamp for securing the guides and slides. The cutters *e e* are secured in a groove by means of a dovetailed plate *f*, which catches into a notch at the end of the cutter. By operating the brace *h*, the screw *g* moves the slide forward or backward by means of the nuts *i*.

Belt P operates a shaft which carries the polishing wheel and the finishing wheel L.

The polishing wheel contains a groove (as seen in fig. 2) which contains the polishing material. S is a felly mitre for the purpose of measuring and cutting fellies to the proper length. J J J J are saw guides, (fig. 2); *u u u u* are pins, adjustable to any size of wheel, in the holes.

The carriage-wheel M is secured to the wheel L by means of the clamps N N. Q is a rest upon which a gauge is held for the purpose of finishing up the rim of the wheel.

Claim.—1st. The double-faced wheel B, working upon an axle and made strong by flanges on the axle, upon which the blocks C C, from which the fellies are cut, are secured by the clamps D, as herein set forth.

2d. The construction, operation, and use of the clamps D, as herein specified.

3d. The construction, arrangement, and operation of the knives or cutters E, as herein set forth.

4th. The construction and operation of the grooved wheel, fig. 2, as herein set forth.

5th. The felly mitre S, constructed and operating as herein specified.

6th. The attachment of a carriage or other wheel M to the finishing wheel L, as herein set forth.

All other parts and operation of the machine I disclaim.

No. 15,593.—Abijah D. Stowell, assignor to John A. Place.—*Improved Wheelwright's Machine.*—Patented August 19, 1856.

The spoke-set A A is attached to the front end of the hub C, with the carriage F containing the hollow auger G attached. The gauge D is set the proper length for the spokes by means of the thumb-screws B; the spokes are then driven into the hub, and their position adjusted by means of the gauge D; and the tenon is cut at the end of each spoke by means of the hollow auger G.

Claim.—The combination of the spoke-set with the carriage carrying the hollow auger, when the whole is attached to the hub while resting over the pit, as set forth.

No. 15,901.—John Sitton.—*Improved Wheelwright's Machine.*—Patented October 14, 1856.

Motion is imparted to the various tools of this machine from the pulley B, and by means of the shaft C.

The hub, being fastened on hub plate P, can be turned thereon; the hollow auger of the sliding-shaft D serves to cut the tenons on the ends of the spokes; it can be replaced by a common bit for boring the mortising holes in the hub. The augers E serve for boring the holes in the spoke tenons and the dowel holes in the end of the fellies. The fellies rest on the blocks R, and are secured there by means of the levers L. The circular saw F serves for cutting the ends of the fellies to the proper slope, the fellies being placed for this purpose on the sliding leaf M.

The inventor says: I do not claim the several devices described separately, but I *claim* them when combined and operated as specified.

No. 15,079.—A. S. Macomber.—*Improvement in Wheelwright's Machinery.*—Patented June 10, 1856.

This invention consists in holding or clamping the hub D upon a suitable bed, in the manner as shown in the engravings.

Claim.—The jaws E, operated by the screws H, worm-wheels F, and connecting-rods G, one pair of jaws being attached to an adjustable bar B^1, the above parts being arranged as shown, for the purpose specified.

No. 15,944.—Thomas Blanchard.—*Improved Method of Bending Wood.* Patented October 21, 1856.

The timber to be bent is fitted into the strap R and placed upon the bed-piece K, one end of it being clamped to the bending-lever D, between the abutment F and the clamping-piece I, operated by screw G. The timber is clamped on all sides and subjected to pressure whilst it passes from the straight mould O to the curved mould Q. The operation of bending is accomplished by turning the bending lever D on its fulcrum by means of a rope and windlass, as represented in the engraving.

The inventor says: I do not now claim submitting the timber to compression upon its ends.

But I *claim*, 1st, subjecting the timber to pressure upon all sides, and continuing the same whilst it is being transferred from the straight trough to the curved mould, as set forth.

2d. The described machine for the purpose of bending timber, consisting essentially of the following elements, or their equivalents, in combination: 1st, the bending-lever; 2d, the device for compressing the timber while it is being bent; 3d, the curved mould in which the pressure is continued, and in which the timber is removed from the machine after the bending operation is completed.

No. 15,851.—Edwin Kilburn, Artemus Kilburn, and Cheney Kilburn.—*Improved Method of Bending Wood.*—Patented October 7, 1856.

The stick to be bent is placed into the channel E, and the driver C, being set in motion towards the mould, forces it endwise into and along the mould, causing it to assume the form thereof without injury in any part.

Claim.—The bending of wood by forcing it endwise of its fibres into a mould, which is closed on all its sides, but has an open end, is curved longitudinally in the required form, and has the dimensions of its internal transverse section of the piece of wood; thus causing the wood to be confined in a lateral direction during the bending process, for the purpose of preventing the separation of the fibres, as described.

No. 15,441.—Nelson Ruger.—*Improved Devices in Carving Wood.*—Patented July 29, 1856.

The pattern R is attached to the cylinder D, and the pieces of wood to be carved similarly to the pattern R are attached to the cylinders C and G, motion being imparted to the shaft B from pulley E, and the screws F and H are rotated in a reversed direction by means of the pulleys *a a*. The pattern passes underneath the tracer *g*, raises the arms N, and a corresponding motion is given to the cutters *e c*, the bar Q communicating said motion to the arms K L. The cylinders C and D are fed by the screw H; the cylinder G is cut in a reverse manner, and is fed by screw F. The work on the pulleys C and G may, when desired, be cut larger than the pattern R, by shoving the bar Q back on the rod P, the latter being attached to the bar O, so that the ends of the bar Q may be nearer the bars I J, thereby causing the outer ends of the arms K L to vibrate or work with a greater stroke or vibration.

Claim.—The cutters *c d g*, in combination with the bars I J, having arms K L N attached to them, these arms having bars M O pivoted or jointed to their outer ends, to which the cutters *e* and tracer *g* are attached, as shown and described.

2d. I claim the bar Q, placed on a rod P, which is attached horizontally to the vertical bar O, the ends of the bar Q fitting between the arms K L, as shown, for the purpose set forth.

No. 14,472.—Philipp Schwickardt.—*Mode of Producing Designs on Wood.*—Patented March 18, 1856.

The nature of this invention consists in compressing wood, artificially softened, between two forms containing the design to be produced, (one the obverse, and the other the reverse of the design).

The forms used are such that the contour and all the higher points are equally high, and all the lowest points equally deep.

The inventor says: I *claim*, not the production of raised designs, but of veins, streaks, drawings, pictures, and designs on the plane surface of the woods, by means of pressure, the forms of dies above described, and the application of the same for the productions of such veins, streaks, drawings, pictures, and designs; the exclusive use of the design produced through the body of woods when compressed between proper forms, and the combination of two or more kinds of wood to produce the mosiac or inlaid work, by compressing, joining, and separating them, as above described.

No. 14,636.—Edward J. Updegraff.—*Improved Machine for Bending Wood.*—Patented April 8, 1856.

The dotted lines in the engravings represent the form, strap-block, and wood, as in the starting position, the strap lying upon the platform D, with the clevis *e* hooked over the pins; one end of the wood being stuck in the clevis e^1, it comes between the strap and the form G, which,

being pressed down by means of the screw *o*, turns as the platform D moves along. The ends of the wood 1 2 3 4 are secured to the form by means of bar *g* and hooks *c* c^1. The spring *u*, upon which the lower end of the screw *o* presses, is designed to accommodate the pressure to any irregularities in the platform D.

Claim.—The peculiar method of operating the form upon which the wood is bent, by bringing it hard down upon the platform by means of the screw *o*, and giving it motion by means of the platform beneath it, (whether endless chain or otherwise,) separately and in connexion with the arrangement of the wheels F and I, the screw *o*, the spring *u*, the frame K, and the slide H, substantially as set forth.

No. 16,157.—Job White.—*Improved Method of Applying Steam to and of Cutting Scraps from Wood.*—Patented December 2, 1856.

A detailed description of this invention would take up too much space to be given here; the principal features of it will be understood by reference to the claims and engravings.

The inventor says: I do not claim the discovery or invention of cutting a board from the circular surface of a log by means of a circular or revolving disk, with cutters moving laterally; that was patented by me and Phineas P. Quimby, September 12, 1827. That machine never was able to work with any degree of facility or success, and remained my exclusive property.

Nor do I claim that steaming wood for the purpose of working it is an invention.

But I *claim*, 1st, the arrangement of the cams and beam in combination with the feeding-gear, by which the perpendicular and rotary motion of the log is made immediately after the cutter has passed through, giving exact feed to continue a circular kerf around the diminishing surface of the log, making a board of uniform thickness.

2d. The mode and arrangement by which I apply steam or heat to a log in the process of being sawed, by which I am able to apply it to the surface of the log immediately before the cutters, and at the particular time and place required for the work designed; the same result may be obtained by a cast-iron hollow form, by which either steam or heat may be applied to the surface of the log.

No. 14,405.—John C. Morris.—*Improved Method of Bending Wood.*—Patented March 11, 1856.

The levers 7, strip 5, and piece of wood 4 (to be bent), are first in the position represented by dotted lines. By winding the cords 11 upon windlass 14, the levers, etc., will finally be brought into the position represented by full lines.

Claim.—The clamps 6 6 to prevent end expansion, and the levers 7 7, working on fixed fulcrums 8 8, when in operation; all substantially as and for the purpose set forth in the foregoing specifications.

No. 14,807.—Charles Day and Alanson D. Lord.—*Improved Machine for Splitting Wood.*—Patented May 6, 1856.

The handles of the axes G hang in an upright frame E, the ends of the handles coming under a horizontal wheel C on which are cams D, so arranged as to raise the axes a sufficient height that their weight shall give the required force to go through the wood to be split.

The inventor says: I do not claim the wheel and cams as my invention, as cams or wheels and shafts have long been used for giving motion to other parts of machines before. But I *claim* the particular application of the axes, raised in the manner set forth, for the purpose of splitting wood.

XV.—STONE AND CLAY.

No. 16,174.—James H. Buck and F. A. Cushman.—*Improved Machine for Pressing Hollow Brick or Building-Blocks.*—Patented December 9, 1856.

The operation of this machine is as follows: The clay passes from hopper U into box S, and motion being imparted to driving-shaft G, the cam K operates lever V, and moves the filled box S over mould-box M; the clay passes down said mould-box, and box S is removed again under hopper U. At this time the cross-head P descends, and the plunger Q compresses the clay within the mould-box M; the cam F which regulates the movement of plunger Q causes said plunger to rise when the brick is formed; and now cam L raises plunger N, and the formed brick is raised flush with bed T and forced off therefrom by box S as it is moved over mould-box M.

The inventors say: We do not claim the sliding-box S, nor the general arrangement of the machines; for machines similarly constructed have been previously used.

We *claim* operating the plunger Q, by means of the peculiarly constructed cam F, in combination with the toggle R and cross-pin *i*, when the same are constructed and arranged to operate in relation to each other in the manner and for the purpose set forth.

No. 15,293.—James A. Hamer.—*Improvement in Brick Machines.*—Patented July 8, 1856.

B represents the mould-wheel on shaft C, represented in part at fig. 3; D are the plungers working in the moulds on the wheel D and operated so as to move to the required points, as shown at fig. 2, by means of a shaft E passing through the end of the plunger, as shown at fig. 4, said shaft carrying on its ends small rollers, which run in the grooves

of the guide-plate, fig. 2. This plate is stationary, with the exception of the segment F, and the mould-wheel in its revolution causes the plungers to travel backward and forward. The segment F can be set up at the pressing point in order that the brick may be gauged to any thickness. The wheel M, fig. 1, being set in motion, and clay being thrown into the hopper P, the screw in the shell O receives the clay and fills the moulds as they revolve; at the same time the dust-box S is filled with fine sand, and the fan T set in motion; each mould is dusted previous to its being filled with clay, to prevent the brick from adhering to the mould. As the wheel revolves, the brick are first pressed, then the plunger backs a short distance, in order to free from the brick, after which the plunger again comes forward and gradually forces the brick from the mould into the endless belt. During this process the gates G are operated in such a manner that they are closed when the mould is filling, and open as soon as the brick begins to discharge. The scraper R closes the end of the mould at the pressing points; during the remainder of the revolution the end is open.

The inventor says: I do not claim the mould-wheel or the manner in which the plungers are operated, viz: by means of the stationary guide-plate, fig. 2.

But I *claim*, 1st, the adjustable segment F of the guide-plate, fig. 2, in combination with the plungers D, arranged as described and set forth.

2d. I also claim dusting the moulds of the mould-wheel with fine dry sand, preparatory to their being filled with clay, by means of the arrangement and combination of the blower or fan T, the sand-box S, the shaker-board Q, the arm U, weight-ball V, and shaker-rod W.

3d. I also claim the sliding-gate G, so constructed and operated by means of a small roller H running in the guide-plate I, that the mould is filled at the end by means of the screw in the shell O, while the wheel is in operation; said gate being closed while the mould is filling, and open during the discharge of the brick.

No. 14,100.—Richard W. Jones.—*Improvement in Brick Machines.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engraving, which latter represents the carriage and moulds in two positions—one in full, the other in broken lines.

The inventor says: I do not claim the pug-mill or mode of tempering the clay, for that has been previously used; neither do I claim the reciprocating carriage J, in itself considered.

But I *claim* feeding the moulds N underneath the grate F and pressing-roller C, and discharging them therefrom by means of the reciprocating conveyor J, springs L, catch-spring M, and roller K, when combined, arranged, and operated as shown and described.

No. 14,155.—Louis Theodule Delassize.—*Improvement in Brick Machines.*—Patented January 29, 1856.

The cylinder A contains the brick-moulds *c*, each provided with a movable bottom plate D. It will be understood from the engravings

how these plates are moved in and out, so as to perform the pressing process, by means of rods I and J connected to the arms of a rock-shaft E.

Claim.—The combination of the sectional pinion L and spring-toothed crane M with the rock-shaft E and pressing rods I J, arranged and operating substantially as and for the purposes above set forth and described.

No. 14,713.—Patrick S. Devlan.—*Improvement in Brick Machines.*—Patented April 22, 1856.

By turning the hand-wheel D, a vertical reciprocating motion is given to the plunger I. When the plunger descends, the pin *i* passes through the slot *m*, until near the end thereof, without moving the bar *z*; but when the pin arrives at the bottom of the slot, it carries down the bar *z* and the follower *n*, until said follower rests upon the cross-piece J^1 of the frame. The brick being formed, the plunger rises; and when the pin reaches the top of the slot, the follower rises up also, carrying the pressed brick up into the receptacle O immediately above it; at this point of the operation, the wheel N is again brought around a portion of a revolution, (by means of pin *a*, arms *b* b^1 on shaft *c*, weighted arm *d*, bar R, bell-crank lever S, and ratchet-wheel U, with pawl V,) and the operation of pressing and delivering is again repeated.

Claim.—In combination with a stationary mould L and a reciprocating piston or plunger I, an intermittently rotating, feeding, and conveying apparatus N, through which the plunger passes to compress the clay and form the brick, and which remains to receive the brick as it is ejected from the mould, and carries it forward out of the way of the succeeding clay box; the whole being operated by an arrangement of devices, substantially as described.

No. 14,873.—Edmund Kingsland.—*Improvement in Brick Machines.*—Patented May 13, 1856.

The clay, after having been worked and tempered, is deposited in the hopper M, from whence it is forced into the moulds by the revolution of the mould cylinder towards the pressure roller E, and is compressed in the moulds by the said rollers E as they arrive opposite the said roller. The moulds pass now in contact with the finisher F, and then onward till the ends of their respective piston-bars G G come in contact with the rollers *d d*, the action of which drives out the bricks, and deposits them on the apron W. The empty moulds then move onward till the ends *b* of their piston-bars G come in contact with the roller C, and at about the same time as this is effected, the dirt is sprinkled into the mould by the action of the revolving box or fan I, when the mould is in a state to be recharged with clay.

Claim.—The oscillating finisher F, provided with a pair of fixed *p p*, and a pair of movable bearings *o o*, and operating in combination with a

mould cylinder, containing flat-faced moulds, for the purpose of finishing the bricks with flat outer surfaces, as herein set forth.

2d. The employment, for varying the depth of all the moulds simultaneously to vary the thickness of the bricks, of the two cones H H, the right and left handed screw-shaft C^1, and the nuts *g g*, all applied to the mould cylinder shaft, and operating in combination with the inclined edges *e e* on the piston-bars G G.

No. 14,947.—Martin Buck, James H. Buck, and Francis A. Cushman.—*Improvement in Brick Machines.*—Patented May 27, 1856.

Motion being given to the pulley C, the shaft L will be rotated, the crank M and pitman N drawing inwards the upper end of the lever-frame O, and pushing the clay box X from underneath the hopper Z and over the mould V. The upper ends of rods D^1 are thereby disconnected from the projections *k* on frame T by means of the projections a^1 and rods D^1. When the parts are in this position, the pin *m* on the shaft L strikes the pin *l* on the shaft F^1, and said shaft, with the segments E^1 E and part pinions C^1 C^1, will be turned; and as the segments E^1 gear into the racks h^1 and the part pinions C^1 gear into the racks *i*, the block W and the rods D^1 will descend. The crank M and pitman N then throw the upper part of lever O outward, whereby the box X is thrown underneath the hopper Z. H then gears into pinion J, and I is turned by the wheel E, which now gears into pinion F, the crank P and pitman Q drawing inward the toggle R, and forcing the plunger U within the mould V. When the two arms of toggle R are in line, the plunger is depressed, and the crank P and pitman Q now raise the frame T and plunger U, and the springs *n n* force the hooks *j* on the rods D^1 over projections *k;* and as the racks *i* gear into the part pinions C^1, it follows that, as the frame T and plunger U rise, the shaft B will be turned, and the mould-clearer W will also be raised by means of pinion A^1 and racks *h h;* and the pinions A^1 C^1 are so proportioned that the block W will rise slower than the plunger, so as to allow said plunger to be sufficiently raised and be beyond the reach of the pressed brick, which is forced up out of the mould by the block W.

The inventors say: We do not claim the mould V, plunger U, and sliding sand or clay box X; for they have been previously used for moulding and pressing hollow brick, although operated separately, and quite differently arranged from the plan herein described.

But we *claim* connecting the plunger U with the block or mould-clearer W, by means of the rods D^1 having the racks *i* on their lower parts, which racks gear into the part pinions C^1 C^1 on the shaft B^1, whereby the plunger is allowed to rise more rapidly than the mould-clearer.

No. 15,276.—E. Braman and R Peterson.—*Improvements in Brick-Machines.*—Patented July 8, 1856.

The clay is placed within the hopper B, and the beaters C mix the clay; the beaters on the lower shaft fill the mould-box T, when under-

neath the hopper B; when the box T is filled, the hook *j* on the wheel Q will come in contact with the teeth *g* on the bar O, and the mould-box will be moved forward below the front plate *b* and underneath the plunger D, which is raised at this time; the tooth *j* on the wheel Q then leaves the teeth *g* on bar O, and the mould-box is at rest while the plunger D is forced down by the toggles E upon the mould-box, compressing the clay therein. When the clay is compressed, the plunger D is raised by the toggles E, and the three teeth *i* on the wheel Q then fall in gear with the teeth *g*, and move the mould-box outward, and a vertical plate W is placed in front of the plunger; the springs *s* will throw the plungers *l* in the mould-box T upward, as the curved ends of the slots *q* will allow the rods *o* to rise, and the pressed clay will be raised to the surface of the mould-box. The teeth *h* on the wheel now fall into gear with the wheel R, and the bar O and mould-box are moved back to their original position, the pressed clay passing down the inclined plate U upon apron V.

Claim.—1st. The mould-box T, provided with the plungers *l*, when said plungers are operated by the springs *s* and rods *o o* working in the grooves *q r*, for the purpose of allowing the mould-box to receive the clay, and also to eject the compressed clay therefrom.

2d. We claim operating the mould-box T, when constructed and arranged as above set forth, or giving it a reciprocating motion with the necessary "dwells" to allow the box to be filled with clay, and also to allow the clay to be pressed therein by means of the rack-bar *o* and the wheels R P Q.

3d. We claim the combination of the plunger D and rods *o o*, working in grooves *q r*, with the mould T provided with the plungers *l*.

No. 15,546.—Isaac Harman, assignor to Himself and William Bickel.—*Improvement in Brick Machines.*—Patented August 12, 1856.

The clay passes from the hopper W into the space between the two sliding moulds N N^1. Motion being imparted to the machine from the shaft H, the counterbalance *r* operates upon levers T, and links *t* so as to project the knife U forwards, and to separate the clay in the hopper from that in the mould. When the knife U has reached the farthest point, the machine commences its reverse stroke, and the points of the latches S have caught underneath the radial plate Q, rendering the latter a permanent base for the clay in the sliding-moulds to rest upon. The whole sliding-mould is now carried forward, until the two halves N^1 and N have been pushed so close together that the angular projections of one side with the angular projections of the other, and the reverses of both, form a series of oblong spaces in which the bricks are moulded. As the machine continues its movement, the motion of the connecting-rod L reverses, and the latches S are removed from under the plate Q, which drops down; and when the moulds N and N^1 are released from each other, the bricks fall on to the endless band and are removed.

Claim.—The moulds, composed of two halves N and N^1, having any convenient number of angular projections and recesses, the points of the angular projections of one half coinciding with those of the other half, the said moulds being caused to expand and contract, and being constructed and operated substantially in the manner and for the purpose set forth.

No. 15,618.—Henry B. Ramsey.—*Improvement in Brick Machines.*—Patented August 26, 1856.

As the cog-wheel A revolves, and the wrist B is moved towards the knuckle-joint P, the latter is straightened, raising the moulds J to the knives K K; at the same time that the wrist B is moved towards the knuckle-joint P, the wrist F draws the reciprocating car I back by means of the pitman 2, the goose-neck lever *h*, and the lever L; the cranks G also move back the pitmen 3 and the catches *m*, letting the springs S S pass the knives K K across the top of the moulds J. The slides N are worked by the knuckle-joint P, and are attached at the bottom to the pitmen Z Z, which pitmen are attached by joints *a* to the bottom of the springs S, which work upon the fixed pivots at B. At the raising of the slides N, the springs S are forced out by pitmen Z, moving the top of the springs in and the knives K across the top of the moulds J.

Claim.—1st. The wheel A, cranks G G, and catches *m m*, in combination with the springs *s s*, for the purpose of regulating the stroke of the knives K K, for cutting the clay at the top of the moulds J, as described.

2d. I claim the sliding mould-table T, for the purpose of raising the mould to the grate under the clay box, when the same is constructed, arranged, and operated in the manner and for the purposes set forth.

No. 15,766.—William A. Jordan.—*Improvement in Brick Machines.*—Patented September 23, 1856.

Motion being given to the shaft *c*, the cranks and pitmen *h* and h^1 operate the shoving boards *e* and *f* on which the moulds are placed; the moulds are thus moved on the two tables A and B in an opposite direction, and at each revolution of the shaft *c*, one row of moulds on one table is filled with clay from the hopper, while on the other table an empty mould can be replaced behind the shoving boards *e* and *f*; thus one operator, standing at each end of the tables A and B, can replace the empty moulds on one table and withdraw the filled moulds from the other table at the same time.

The inventor says: I do not claim the use of double tables, or the employment of a rotary scraper, as such devices have been used before; but I *claim* the tables A and B, and shoving heads *e* and *f*, when arranged to operate in relation to each other in the peculiar manner described, in combination with the rotary scrapers K K^1 and curved guards O O^1, the whole being constructed and operating in the manner and for the purposes set forth.

No. 15,798.—Henry Brad.—*Improvement in Brick Machines.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—I claim the self-adjusting frame *a*, for the purpose of removing the brick from the moulds on to the apron *b b* after they are pressed, operated by means of spring *t* and projections O *o* on the revolving journal H, when the above parts are constructed, arranged, and operated as set forth.

No. 15,808.—Joseph A. Hill.—*Improvement in Brick Machines.*—Patented September 30, 1856.

The mixed clay passes from the hopper A into the case I underneath the semi-cylinder H; and as said semi-cylinder oscillates, the clay is forced into the moulds N, which are carried underneath the case I by the carriage J, which is moved forward underneath the case when the rod *k* is moved by the hand of the attendant, so that the pinion *j* will be thrown in gear with the rack-bar K, said pinion being out of gear with the rack-bar when the mould reaches the proper point or position. The return motion is given to the carriage by throwing the pinion *i* into gear with the rack-bar. The filled moulds are pressed forward or thrown out from underneath the case I by the succeeding moulds.

Claim.—The drum L, provided with the pinion *i*, when constructed as shown, and arranged to operate relatively to the rack-bar K and pinion *j* as described, for the purpose of reciprocating the carriage J, in the manner and for the purpose set forth.

No. 15,863.—George Ichabod Washburn and Ephraim H. Bellows.—*Improvement in Brick Machines.*—Patented October 7, 1856.

The arm L at its lower end rests in a suitable bed or cavity *h* in the top of the plunger I; and as the plunger is carried forward with the cylinder D, by the rotation of said cylinder it is forced down into the mould C, and the requisite pressure is put upon the clay. As the plunger passes the centre, the arm L escapes from the cavity *h*, and is carried back to its vertical position by the weight N^2. As the plunger I rotates with the cylinder D, after the escape of the lever L, it is withdrawn from the mould as follows: *r r* are rollers attached to the plunger, which strike against the arms O pivoted to the frame at *q*. These arms are forced back by the plunger; and as their upper extremities lie immediately beneath the rollers, the latter are raised, and thus the plunger is drawn out of the mould; at the same instant the pin *f*, escaping from the pin *g* upon the cylinder, permits the plunger to be carried back, ready to be again operated when the next mould C comes round.

Claim.—We claim the combination of the balanced arm L with the weighted reciprocating plunger I, operating in the manner and for the purpose substantially as set forth.

2d. We claim the means by which the plunger is locked with and disconnected from the cylinder D, consisting essentially of the pins *f* and *g* and the arms *o*, operating in the manner substantially as described.

No. 15,005.—George Crangle.—*Improvement in Rotary Brick Machines.*—Patented June 3, 1856.

The shaft C being rotated, lever M is depressed and lever T is lifted, which latter being coupled to the ratchet R by means of the pawl U, causes the cylinders to rotate until checked by the lower branch-lever P engaging with the ratchet Q. One of the plungers now comes in contact with one of its moulds and forms the clay into a brick. The radial arm L^1 depresses now lever N, lifting P and drawing back the pawl U into the next notch, whilst the plunger which has just pressed the clay rises, and the other one descends, and the cylinders are rotated the length of another notch of the ratchet R, and a second brick is pressed in the other cylinder, and so on.

The inventor says: I do not claim a rotary double-cylinder brick machine, as such machines have been used before; nor do I claim arranging the moulds around the cylinders so as to alternate with two plungers on one actuating shaft.

But I *claim* the apparatus for rotating and stopping the cylinders of rotary brick machines. The said apparatus consisting of the armed disk I, the branched-lever M, the bent lever T, pawl U, and the ratchet wheels Q and R.

No. 15,471.—John Boynton.—*Improved Brick Press.*—Patented August 5, 1856.

An intermittent rotary movement is imparted to the horizontal circular moulding-plate C, whereby it is made to stand still during each up and downward motion of either of the plungers U and V. In consequence thereof, each of its matrices *a* in succession will be charged with clay from the hopper K, and afterwards be moved around underneath the compressor U, and when subjected to its action be moved around underneath the discharger V.

The inventor says: I do not claim a brick press, composed of a revolvable moulding cylinder or prism, having moulds placed in its perimeter or cylindric surface, a mechanism for supplying or filling clay into the moulds, a pressing mechanism, a discharging mechanism, and a mechanism for imparting to the moulding-cylinder an intermittent rotary motion.

But I *claim* the rotary matrices *a a* and the plate C in which they are formed, hopper K, filling-plunger L, compresser U, bed or mould-plate B, and discharger V, arranged in relation to and in combination with each other so as to be operated by mechanism, as described.

No. 15,778.—Ethan Rogers.—*Improved Hydraulic Brick Press.*—Patented September 23, 1856.

The mould C being filled with clay, the pumps are put in operation, and the water is forced through the tubes B^1 and C^1 into the cylinders D E, through the passages K L, the valves O^1 *o* being open, and the valves *d f* being closed. The two plungers F H are consequently forced towards each other, and the clay in the mould C will be compressed with a power equal to the pressure of the water in the cylinders D E.

Claim.—The employment or use of two pumps with the mechanism for working the same under different pressures, when arranged to operate in relation to each other and mould C, for the purpose of pressing and removing the brick, in the manner described.

No. 14,012.—John B. Collen.—*Improvement in Brick Presses.*—Patented January 1, 1856.

Fig. 1 represents a side elevation of the machine.

Fig. 2 a longitudinal vertical section.

The operation of this machine is as follows: The clay is thrown into the chamber E. On giving motion to the shaft B, the roller R will be made to traverse the chamber E, and force the clay into the mould-box *m*, in front of the piston P. The pressure of the roller a^1 in cam C drives the piston forward and forms the brick; the motion of the piston then ceases, and the small cams *c* (fig. 1) begin their pressure on the short arms of the levers *l*, causing their long arms to lift the gate G; simultaneously with which movement, the roller a^1 of cam C, acting on the projection *f* on the opposite side, withdraws the piston to permit the free upward motion of the gate. At the completion of this elevation, the roller *y* of the cam C comes in contact with the frame D on the side of the acting piston, and, pressing the piston to its extreme stroke, delivers the brick into the box *v*.

The inventor says: I make no claim to stationary mould-boxes of themselves, nor to the use of cams, in producing the intermittent action of the pistons, nor to the peculiar shape of cams; but what I do *claim* as new, and of my own invention, is, the employment of stationary mould-boxes, in combination with the vertically moving-gate, actuated substantially as set forth, and the intermittent action of the pistons, whereby the brick is pressed and delivered by a single piston, as specified.

No. 14,195.—Harvey J. Hughes.—*Improvement in Brick Presses.*—Patented February 5, 1856.

A is an oil globe, (fig. 4 represents a section of the same on an enlarged scale,) for the purpose of introducing oil into the chamber *o* in the stationary head of the press, and through holes *c c* into the mould. The recesses *d* serve to prevent the holes from closing up during the passage of the mould up and down.

The operation consists in adjusting the bricks upon the movable head of the press and bringing down over the bricks, after they are thus placed, the mould D, by the action of the cam upon axis A^1. After this, (the cam being properly shaped,) the mould remains stationary for a time, during which, the press-head G is made to rise, by the action of eccentric E^1 and levers 1 2 3 and 4; the cam then raises the mould, leaving the brick free to be removed from the off-bearing table E, by another being brought into position upon the movable head of the press by the feed, and displacing the one already pressed, which operation is performed by the further revolution of the cam.

Claim.—1st. The table actuated as above described, or by any other equivalent means, by which the bricks are discharged after being pressed, and by which they are borne away from the press-head.

2d. The specific arrangement, above described, for oiling the mould during its passage up and down over the head.

No. 15,135.—Lewis Kirk.—*Improvement in Brick Presses.*—Patented June 17, 1856.

The dry clay passes from the hopper in front of the compressing piston, which, by the action of crank J, forces it against the head of piston P, at this time constituting the back of the mould, as shown in fig. 2. As the crank J withdraws piston P^1 from the face of the moulded brick, pin *i* is drawn by groove *f* towards the axis of shaft I, forcing rods *r* towards the mould-chamber, thereby moving cranks s^1, and thus turning the trunnions *a* of the mould-chamber. This position is represented in fig. 1. During this movement, bar *d* is forced to traverse the slot *c*, and is thus carried towards the axis of trunnions *a*, forcing piston P into position shown in fig. 1, which discharges the brick. As the chamber A passes downward, the clay-guard B covers the opening below the hopper and prevents the issue of clay therefrom.

By the continued rotation of shaft I, the pin *i* is, after the passage of point *x*, carried from the axis of the shaft, causing the mould-chamber to rise. During this movement, slot *c* draws piston P backwards, and the chamber is ready for moulding another brick.

Claim.—The oscillating mould-chamber A, in combination with the clay-guard B, concentric with its trunnions *a* and the piston P, actuated by the oscillation of the mould-chamber.

No. 14,052.—Edgar Conkling.—*Improvement in the Form of Building-Bricks.*—Patented January 8, 1856.

The nature of this invention consists in a form of brick that affords improved facilities for grouting one or several courses of brick after laying, and enables the mason to lay the bricks either wholly without the use of a trowel, or with mortar courses so thinly spread as to exclude the disintegrating action of the weather, and thus to attain greater strength and durability, and a neater and more lasting finish.

The inventor says: I disclaim forming bricks with holes running

vertically through them, such having been proposed in the English patent of Caleb Hitch; but I *claim* the brick, as described, having marginal ribs *d e* skirting three sides, and a central rib *f* across the middle of the bottom surface, (or of the top and bottom surfaces thereof,) said ribs enclosing cavities *b* b^1 adapted for the reception of grouting, in combination with covering on the inner edge, affording passage for grouting from above to the cavities *b* b^1 below the bricks, or devices substantially equivalent.

No. 14,846.—S. W. Wood.—*Improvement in the Manufacture of Machine Bricks.*—Patented May 6, 1856.

The hopper B, being filled with prepared clay, is elevated to any required height by rotating the cam E; when the point V of this cam passes from beneath the lug F, the hopper B drops upon the table, forcing by the concussion the clay into the moulds.

Claim.—Moulding brick by concussion, whether it be by this or any other mechanism.

No. 15,329.—Marinus P. Craps.—*Improved Machine for Striking Unburnt Brick.*—Patented July 15, 1856.

The clay passes from the apron F into the hopper C under the follower D, and fills the moulds K. The follower D is then pressed down by means of a lever, and the lever I is moved forward, which causes the bevelled edge of the striker G to separate the clay in the mould-box from that in the hopper, and to run over and press down into the mould any small lumps, gravel, or stone, thus rendering the surface smooth and firm.

Claim.—Operating the follower D and striker G by means of mechanism constructed and arranged as above described.

No. 15,374.—Ambrose Foster and G. M. Foster.—*Improved Machine for Moulding and Pressing Building-Blocks from Clay, &c.*—Patented July 22, 1856.

The material is placed within the hopper M, when in the position shown in dotted lines; and as the driving shaft is rotated, the hopper M is moved forward by cam *j j* and lever N to a point directly over the press box J, and the material falls into the press box. The hopper then moves backward till the cross plate U covers the press box; the plunger I is now forced upward by cam H, and the material compressed within the box. Just previous, however, to the rising of the plunger I, the cam *l* will strike against the lower end of the lever Q, and will force the press box J and plate L against the cross plate U, and retain it there until the material is pressed, when the press box falls to its original position.

Claim.—We do not claim a sliding hopper, nor do we claim a core

placed within a press box for the purpose of moulding hollow bricks; for these devices have been previously used.

But we claim, 1st. The sliding hopper M, plunger I, and vibrating press box J, when the above parts are moved or operated relatively to each other as shown, for the purpose specified.

2d. We claim operating the hopper M, press box J, and plunger I, by means of the cam H on the shaft G, the ledges *j* j^1 and *l* on the wheel F, and levers N Q, the above parts being constructed and arranged substantially as shown and described.

No. 15,197.—Carl F. Schlickeysen.—*Improved Pug-Mill for Mixing Clay.*—Patented June 24, 1856; England February 24, 1856.

In order to obtain a regular feed for every degree of tenacity of plastic material, the inclined knife *k* is used, its action being both to work and press the matter above it, and to prevent the adherence of the clay.

The overlapping of the blades *h* prevents the possibility of the clay escaping from under the rotating blades, except at the outlet *r*.

The vessel *m* turning with the shaft *g* assists in the discharge of the plastic material from the case *a*, forcing it upwards towards the opening *r*, in the same manner that the mass is pressed towards the opening *r* from above.

The inventor says: I wish it to be understood that I do not intend to claim the use of radial blades or beaters for forcing down clay into or through moulds or dies, as that has long been practised.

But I *claim*, 1st. The employment of the clearing knife K, in combination with the hopper *b*, the tapering case *c*, and beaters *h*.

2d. I claim the rotating bottom *m*, in combination with the beaters *h*.

No. 15,540.—George H. Wood.—*Improved Rock-Drill.*—Patented August 12, 1856.

Motion being given, the crank K will, during one half revolution, carry the hooked pitman L away from the griping levers, while the other half revolution carries the hook a^1 on the pitman under the lever N, which, acting upon O, causes it to gripe the drill firmly and lift it up, while the arm of the griper O, working in the angular guide, causes the drill to rotate a certain distance during each upward motion. The hook a^1 having been carried away from beneath the lever N, the coil-spring S instantly depresses the lever N, thereby loosening the hold of the griper O, and fastening the griper N upon the drill-bar, which is then thrown down by the combined action of the spring and griper N, with a force greater or less, according to the position of the spring upon the rod R. When the under surface of the griper N strikes the horizontal plate *a*, it is thrown into a position at right-angles with the drill which is thus loosened and passes freely down to its work.

Claim.—The combination of the hooked pitman, crank, and strap, when arranged as described, as a mechanism for lifting the drill, substantially as set forth.

No. 16,146.—Martin Gore and John P. Gore.—*Improved Rock-Drilling Machine.*—Patented December 2, 1856.

The machine being set in motion, the cam L in revolving comes in contact with collar M, and raises the drill-bar A, which brings collar N in contact with arm O, and causes the levers P and Q to vibrate as it rises and falls with the drill-bar. The pawls S and T attached to levers P and Q operate the ratchets U and V, and thus feed the frame and drill down as fast as the drill cuts.

Claim.—We do not claim feeding the drill at the end, or during its down stroke, by the action of its head on the device holding its suspending mechanism, another operation being required for turning the drill, as such constitutes no part of our invention.

We claim the combination of the rock-shaft and its arms O P Q with the pawls S T, ratchets V U, and the collar N on the drill-shaft, for effecting the feed and turning of the drill by the upward movement of its shaft, as set forth.

No. 15,595.—William M. Barton, assignor to Himself and Robert M. Barton.—*Improvement in Rock-Drills.*—Patented August 19, 1856.

The main shaft C, receiving its motion from a crank G, bears a wheel H, the teeth upon which cover only small segments, being that of the desired number of blows of the drill during a revolution of the shaft. The teeth are made to catch against the teeth of the ratchet-wheel I upon the shaft D, and this shaft bearing also the cog-wheel J, which gears into the cylindrical rack K of the drill, effects its intermittent rise. The shaft D is provided at one end with a coiled spring L, riveted to a drum M, which is loose on the shaft D, and can be kept stationary by inserting the catch N into one of a series of holes on its circumference. When the drum M is loose, the drill B falls by its own weight as often as the ratchet-wheel I is released from the teeth of the wheel H; but when the drum is fixed, it forms a resistance to the spring, which reacts when the released end drives down the drill B with a force graduated by changing the hole into which the spring N catches, whereby the tension of the coiled spring L is regulated.

Claim.—The combination of the segmentally toothed-wheel H, gearing into the ratchet-wheel I, with the spring L and its drum M, when their parts are arranged as set forth.

No. 15,665.—John F. McCully.—*Improvement in the Manufacture of Black Bottle Glass.*—Patented September 2, 1856.

The nature of this invention consists in using a combination of sand, soda-ash, lime, common salt, and clay slate, for the purpose of furnishing the coloring matter of black bottle glass, as well as forming one of the bases of the glass itself.

The inventor says: I do not claim as new the process of reheating the batch, as applied to the ingredients heretofore used for making

black glass, but only as applied to and necessary for the batch, if the specified clay slate is used as one of the constituent ingredients.

I *claim* the introduction of the above specified clay-slate as one of the ingredients in compounding the usual batch for the manufacture of black glass, in the proportion and in the manner as specified.

No. 15,548.—Henry W. Adams.—*Improved Mould for Pressing Glass Fountain Lamps.*—Patented August 19, 1856.

A sufficient quantity of molten glass being poured into the mould A, the pistons C and E are pressed down, forcing the glass into the proper recesses, which correspond with the shape of the reservoir *b* and cup *c*, the piston D serving to compress the glass and to cause it to fill the mould completely. When this is accomplished, the pistons D C and E are removed from the moulds, and the part K, which closes the passage from the reservoir to the cup, is removed by the arm G of a mould resembling in its shape a pair of tongs, as represented in fig. 2, the part F being inserted in place of the mould E. The plate H is then applied to the bottom of the mould, and a piece of glass is inserted into the aperture *s s* corresponding with the one made by the core *j*; and, when said piece has been inserted, it is pressed downward and kept from spreading by means of a piston I driven into said aperture. The cast is now completed, and the mould may be ultimately removed.

Claim.—The mould, composed of the several parts specified, combined and operating substantially as specified.

No. 14,838.—William P. Walter and Jacob Green.—*Improvement in the Ladling of Molten Glass.*—Patented May 6, 1856.

The action of the bar G and pulley J, to which the ladle P is suspended, as well as the assistance they render in facilitating the operation, will be too apparent to need further description.

The inventors say: We do not wish to confine ourselves to the exact form or position of the rail G; but we *claim* the employment of a suspended ladle for facilitating the manufacture of glass, substantially in the manner set forth.

No. 16,085.—Phineas Burgess.—*Improvement in Machinery for Polishing Glass.*—Patented November 18, 1856.

The glass slabs F are secured to the frames E attached to the cranes D by means of the pivots *d* and the polishing-bed B, which is covered with felt or cloth, and is rotated under the glass plate. The polishing-bed is provided with concentric circular grooves *a*, which are eccentric in relation to the axis C of said polishing-bed, in order to prevent any part of the surface of the glass being escaped by the polishing surface in their rotation.

The inventor says: I do not claim the grooving of the beds for pol-

ishing glass; but I *claim* an improvement on Alfred Broughton's patent of November 7, 1854, and reissued February 12, 1856, viz: the employment and use of grooves arranged eccentrically upon the polishing-bed B, in combination with the cranes D and frames E, as set forth.

No. 14,411.—Job Sands.—*Improvement in Lime Kilns.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim and engravings.

Claim.—Having the fire-chamber B^1 of the kiln so constructed that the bottom will be but a short distance below the door C, no grate-bars being employed; and having an aperture *a* made through the door, so that the air that feeds the fire will act horizontally upon it and nearly in line with the opening a^1, for the purpose specified.

No. 15,549.—Levi Averill.—*Improvement in Lime Kilns.*—Patented August 19, 1856.

The fire passes from the furnace A through the small flues *e e* into each branch C C of the shaft B, from whence the heat ascends through the mass in the furnace. By this arrangement the fire is carried through every part of the charge, burning the centre and sides equally.

Claim.—The construction and arrangement of the kiln with small separate branches attached outside or around a single furnace, from which the heat is conducted through converging passages to several points of their peripheries, substantially in the manner and for the purposes set forth.

No. 16,033.—George J. Wardwell.—*Improved Machine for Sawing Marble and Stone.*—Patented November 4, 1856.

The vibration of the saw-frame B carrying the pin I causes the lever D with its friction-roller G to swing with it. The friction-roller G is thereby made to pass over the circular bearing-surfaces O of the cross-levers C, allowing them, with the cords K and weights J, to fall when the saw-frame B swings from, and to rise when it springs towards, the centre of its stroke; thereby giving the saw-frame B a straight motion, and allowing the saws to remain in the cut the whole or greater part of its stroke.

Claim.—Suspending the swinging saw-frame B from levers C C, when arranged as described, and constructed with or without the circular bearing-surface O resting on the friction-roller or rollers G, in the end of the vertical lever or levers D, attached to and swinging with the swinging saw-frame B, the whole being arranged in the manner and for the purpose specified.

No. 14,296.—PHILIP SCHRAG and WILDERICH JOSEPH KAMMERHUEBER.—*Improvement in Machines for Sawing Marble in Obelisk Form.*—Patented February 19, 1856.

A is a frame suspended by weights and moving vertically between the frame-posts B; frame B has slots on each end to receive the standards C C^1, which latter are provided with guide-pieces D D^1, through which the ends of the saw-frames E slide. The angle of the saw-cut is changed by sliding the standards in the above-mentioned slots, after which they are secured by set-screws. The saw-blades F are strained in their respective frames E, the ends of the latter being provided with head-blocks G (fig. 3), to which the shafts of the ratchet-pulleys H are secured by means of two set-screws. To each pair of pulleys are fastened the ends of a cord, which is tightened by being wound upon their respective pulleys, which are kept in position by the ratchet-wheels *w* and pawls. The cords, in passing from one pulley to the other, are bent around the friction-rollers *l* at the top of the standards C. The cords are grasped at one side of the saw-frame by the tongue J, to which a horizontal motion is given by the rod N, whereby the saw-frames are caused to vibrate. The pulleys H and rollers *l* may be lowered or raised as seen in figures 6, 7 and 8, so that one saw may be set higher than the other when it is necessary to saw at acute angles, which requires the cuts of the saws to cross each other.

Fig. 10 shows the setting of the saw-frames when the blades do not cross, and fig. 11 when they cross each other.

Fig. 9 represents the setting of the saw-frames when obtuse angles are to be cut.

The inventors say: We do not limit ourselves to the material or form of the different parts of our machine as long as the peculiar character of the said parts is retained; and we do also not limit ourselves to the material which shall be sawed by this machine. We do not claim the use of pulley-belts, or their equivalents, or guides for the sole purpose of converting the direction of the motive power into the direction of the saws; nor do we claim the straining of saws by means of belts or chains, as these all have been done prior to our invention.

But we *claim*, 1st, the above-described use of belts, or their equivalents, adjustable in their length, substantially as above described, in combination with the saw-frames, which are strained independently of said belts, whose adjustability is solely for the purpose of permitting change in the distance or in the angle of the saws.

2d. The saw-supporters, adjusted both horizontal and vertical, substantially as described, whereby we are enabled, when cutting parallel or incline grooves, to place the saws in the same plane, that they may commence and end their work simultaneously; and also, when it is desired to cut crosswise or to a point, to place the saws in different planes, the one above the other.

3d. The vertical adjustability of the roller *o* 3 upon the shaft *b* of the straining apparatus, which permits the retention of the belts in a horizontal plane, whether the saws and their frames are placed in the same or in different horizontal planes, as described.

No. 14,532.—John A. Bailey.—*Improvement in Machines for Sawing Marble in Obelisk Form.*—Patented March 25, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The peculiar means employed for gradually moving the saws H H laterally or apart, in the saw-frame C, as said saw-frame descends, viz: having the pulley J attached to the centre of the right-and-left screw rod I, and a chain *j* passing around said pulley, and also around pulleys K K, at the outer end of the pitman K; the ends of the chain *j* being attached to the upper and lower ends of the rod L, to which the outer end of the pitman is attached, and on which it slides; motion being communicated from one screw-rod to the other by any known means.

No. 14,536.—Issachar A. Heald.—*Improvement in Machines for Sawing Marble in Obelisk Form.*—Patented March 25, 1856.

The frame C and saw-frames I are elevated by turning the shaft D. The frames I work with the frame F, and the guide-bars M give a lateral vibrating movement to the saws J while they are working longitudinally, so that the saws will cut angularly or obliquely.

At each end of the stroke, the roller *l* will strike against one of the pins *k*, and the bar O will be moved a short distance, and the rock-shafts N will be turned, so that the rollers *i* at the end of the arms *h* will raise the frame E together with the saws.

Claim.—The rock-shafts N N, provided with arms *h*, having friction-rollers *i* at their ends, the rock-shafts being operated by the bar *c*, having pins K K upon it, between which the roller I on the pin *m* works, said pin being attached to the reciprocating frame F, substantially as shown and described, for the purpose of raising and lowering the saws at each end of their stroke, so that sand may be admitted into the saw-kerfs.

No. 14,658.—J. E. Haviland.—*Improvement in Machines for Sawing Marble in Obelisk Form.*—Patented April 15, 1856.

The saws E O will cut two opposite sides of a block of marble at the same time in taper form; the taper being adjusted by the set-screws P P.

Claim.—Adjusting the saw-frame F more or less angularly or obliquely with the saw-frame D, by means of the adjustable or sliding plates M N, which are fitted over curved surfaces on the cross-pieces of the frame F, substantially as described, for the purpose specified.

No. 14,729.—James Miller.—*Improvement in Machines for Sawing Marble in Obelisk Form.*—Patented April 22, 1856.

The saw-frames B B may be set at the desired angle by means of the bolts E E, which pass through openings in the girths C and D.

The saws are secured at each end to the rocking bars K K, and guided by means of the rollers H H, while the saw-frame allows the saws to descend in a perpendicular direction.

Claim.—The combination of the crank-shaft S mounted above the saw-frame B B, the loosely jointed pitman P P, and the rocking-bars K K vibrating on fulcra upon the adjustable frames B B, which guide the saws, operating substantially and for the purpose above set forth.

No. 14,342.—Christopher Amazeen.—*Improvement in Machines for Sawing Marble in Taper Form.*—Patented March 4, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—The jointed guide-bars F F, arranged as shown, so that two pairs of saw-frames may be driven from one shaft, and one pair of saw-frames be set, if desired, at different angles or degrees of obliquity from the other pair, for the purpose specified.

No. 14,471.—Charles A. Schultz.—*Improvement in Machines for Sawing Marble in Taper Form.*—Patented March 18, 1856.

The shaft of pulley C is hung upon two levers E, and moved by means of levers *f* and rods *g*. The pulleys G and H swing each in a lever-frame I. The straps *i* and pins *j* serve to hold the lever-frames in position.

Claim.—Adjusting the said saw S by means of the swinging-pulleys G and H acting laterally upon it, combined, as herein described, with the pulley C regulating the tension, the several parts being arranged and operated substantially as described.

No. 14,277.—Wallis Bull and George Bull.—*Improvement in Machines for Sawing Marble.*—Patented February 19, 1856.

Claim.—Securing the saws H H in a frame D by means of the boxes F, provided with rollers *j* and rods G, having on their inner ends swivel-boxes *l*, to which the ends of the saws are attached, whereby the saws may be properly strained in the saw-frame, and at the same time allowed to move laterally therein.

No. 15,792.—Alonzo Webster and D. K. Bennett.—*Improvement in Machines for Sawing Marble.*—Patented September 23, 1856.

A reciprocating motion being imparted to the frame B moving on frame A, the cogged wheels *g* are caused to revolve by passing over the rack L, thereby turning the shafts I, which are provided with right-and-left-handed screws, by means of which the stirrups D and nuts E are moved simultaneously, guiding the saws F and causing them to cut tapering blocks.

The inventors say: We do not claim giving to the saws a lateral motion by means of horizontal shafts, having right-and-left-hand screws thereon; but we *claim* the combination and arrangement of the movable stirrups D, cross-bars H, and the arbors I, in the reciprocating frame B, as set forth.

No. 14,177.—Hiram L. Houghton, assignor to Abel H. Grennell.—*Improvement in Machines for cutting Mouldings on Marble.*—Patented January 29, 1856.

The table B being in a horizontal position, the block of marble F is placed upon it and firmly attached to it by the bar D and bolts E E. It is then turned upon hinge C to a vertical position, advanced upon track G close to the disks K K^1, and there secured by bolt H. The disk-frame L is elevated upon ways M M^1 to the top of the block, and then allowed to descend, the disks (having been properly adjusted) being rapidly revolved by means of band and pulley J.

But when the moulding is to be cut sideways, the disks K K^1, together with their fixtures, are removed, and instead of them the disks *e* e^1 attached to the frame L.

The inventor says: I do not claim the cutting of rectilinear mouldings upon marble by the use of revolving disks or grinders, that having been known before; but I *claim* the method above described of cutting mouldings upon the edges of blocks by the employment of the disks K K^1 or *e* e^1 and the adjustable table top B, operating in the manner and for the purpose above set forth and described.

No. 14,072.—Abraham Straub.—*Improvement in Machines for Sawing Marble Obelisks.*—Patented January 8, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—The combination of the divided toggle jointed shaft A A^1 with a hinged or adjustable section of the frame, so that two or more saw-frames hung to and driven by said shaft may be worked in an inclined position to each other, but at right angles to the axis of motion, and so that the shaft, saw-gates, and their guides, as well as the sectional or hinged frame, may all be adjusted simultaneously, and held in adjustment, substantially as described.

No. 14,688.—Lebbeus Brooks.—*Improvement in Adjusting the Angle in Machines for Sawing Marble Obelisks.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engravings.

Fig. 1 denotes a top view.

Fig. 2, an end view.

Fig. 3, a longitudinal vertical section.

The inventor says: I do not claim separate saws or gangs of saws

running in the same plane at any desired angle, and furnished with mechanism and guides to regulate their vertical and longitudinal movements.

But I *claim* the peculiar combination of mechanism by which each of the saw-frames B C is moved relatively to the other, and so as to dispose its saws *a* a^1 *b* b^1 either in or out of parallelism with those of the other, as circumstances may require; the same consisting of the upright rod *l*, the bell-crank rod l^1, their slides *k k*, and staple guides *h h*, the same being applied to the main frame and a saw frame, as specified.

And I also claim combining with each of the bell-crank shafts l^1 and the rod *l*, and each of the saw-frames and its suspension-rod, the movable frame D or E, whereby said suspension-rods are adjusted or moved at their upper ends simultaneously with the movements of their lower ends and in the same directions.

No. 15,814.—M. M. Manly.—*Improved Machine for Sawing Marble in Taper Form.*—Patented September 30, 1856.

The nature of this invention consists in providing two saw-frames A and *a* of any of the usual constructions, to each of which are attached marble saws C and *c* in any required number. These saw-gates run within standards G, and are directed in their course by adjustable guides B and *b*, that enables them to saw the marble to any required angle. The gates may be connected to and worked by one pitman by a forked connexion, or they may be driven by an independent but uniform motion attached to each of them.

Claim.—A machine for sawing marble in angular or tapering forms by means of two horizontal saw frames or gates with adjustable guides, run in connexion, one above the other, with the saws running and working in one plane, for the purposes set forth.

No. 14,839.—A. F. Ward.—*Improvement in Marble-Sawing Machines.*—Patented May 6, 1856.

The marble block is placed underneath the saw-frame or sashes, and two opposite sides of the block will be sawed at the same time, the taper of the block corresponding to the relative angular position of the frame K with the frame C. The saws feed themselves to their work by their own gravity, the weights *e e* serving as counterpoises. The frames will descend vertically, and also the connecting-rods J J, in consequence of the chains *a a* and rack-bars E G, connected by the pinion *g*.

Claim.—Suspending the saw-frames or sashes D D^1 within the frames C K, by means of the chains *a a*, which are attached to rack-bars E, having weights or counterpoises *e* connected to them; the rack-bar E being connected by pinions *g* with rack-bars G, to which the connecting-rods J of the saw-frames or sashes are attached, substantially as shown, for the purpose specified.

No. 15,024.—John A. Toll.—*Improved Marble-Sawing Machine.*—Patented June 3, 1856.

By means of the adjustable fenders *d* the saws can be set to any desired angle. *m* m^1 are pressure-rollers resting on the tops of the saw-gates. Their journal bearings work in adjustable boxes *n*, allowing the rollers to bear on the saw-gates with equal pressure.

Claim.—Combination of saw-gates *e*, adjustable fenders *d*, and pair of actuating rollers *f f*, having simultaneous vibration; the rollers *f f* being secured in bearings in the top of rockers *g g*, so as to admit of being easily removed when it is desired to take out or replace a gate.

No. 15,015.—Robert Myers.—*Improved Marble-Sawing Machine.*—Patented June 3, 1856.

The boxes *a* a^1 *b* b^1 are moved upon the trams *c* c^1 *d* d^1, so as to give the shafts B C the requisite inclination, and the guides *h* adjusted to permit the saw-frames to conform to the lines of direction of the pitmen. Motion is then given to the shaft H, by which the saw-frames are reciprocated through the gearing connexion.

The inventor says: Disclaiming the method of adjusting the crank-shafts around the driving-shaft, and of adjustable guides to govern the saws, I *claim* the arrangement of the shafts B and C relative to the driving-shaft H and to each other, in combination with the saws P and varying pitmen K, for effecting the simultaneous cutting of three or more taper blocks at a single operation.

No. 15,115.—Cyrus Avery.—*Marble-Sawing Machine.*—Patented June 17, 1856.

The office of the sliding-bars C C is to guide the saw-frame when in motion, and also to receive and keep in position one end of the vibrating link E. There are bolt-holes in the slide-bars for the purpose of moving the regulating link E, in order to give the desired lateral motion to the saws.

Claim.—The combination of the slide-bars C, link E, lever F, with the rack and movable stirrup H. The whole being constructed, arranged, and operated in the manner and for the purpose set forth, and not otherwise.

No. 15,242.—Henry Lawrence.—*Improved Marble-Sawing Machine.*—Patented July 1, 1856.

Figure 1 represents a plan of the machine bisected by line *x x*, with the rocking frame for operating the saw-gates in section.

Figure 2, an end elevation.

Figure 3, a cross vertical section taken at the line A *a*.

Figure 4, a section taken at the line C *c*.

The inventor says: I am aware that to avoid varying the length of

the stroke of the saw-gate, as it is moved up and down, the pitman has been rigidly attached to the end of the saw-gate, and the other end adapted to slide up and down on a rod attached to a reciprocating frame that slides on horizontal ways, and therefore I do not wish to be understood as making claim to such mode of connexion; but it will be seen that such mode of connexion could not be applied to operate two saws simultaneously in opposite directions, that one may make its cut whilst the other returns, and that it could not be applied to a blade or saw-gate whose plane of motion requires to be shifted.

And I am also aware that saw-gates have been variously mounted, so that they could be set to cut at various angles; and therefore I wish it to be understood that I do not claim broadly the mounting a saw-frame or gates, so that they can be set to cut in planes at various angles.

But I *claim* mounting the two saw-frames *j j* each in ways *h h*, on the side of a frame *g*, substantially as described, in combination with, and when such frame *g* is provided at its ends with slides *m* fitted to slide up and down in separate ways *e e* connected with the main frame *a* by journals or stems *d d d d*, adapted to turn and slide in suitable slots *c c c c*, and there held and secured, substantially as described, whereby the said saws *k k* can be set each independently of each other, to have its cutting and feeding motions at any desired angle, by simply turning or shifting the journals of the said ways.

Also, in combination with the before described manner of mounting the two saw-frames in adjustable sliding frames adapted to shifting and turning ways, the mode of imparting motion to said saw-gates by means of pitman or connecting-rods *p p*, hinged at one end of the saw-gate, and at the other fitted to slide and turn in rockers *r r*, mounted in and free to turn in a rocking-frame S, which receives motion from some suitable motor, substantially as and for the purpose described.

No. 15,328.—Ira Carter.—*Improved Marble-Sawing Machine.*—Patented July 15, 1856.

The marble block to be sawed is placed upon the flooring A, the saw-frame C being raised, and the saws U U are set angularly with each other to correspond with the taper intended to be given to the sides of the block, by adjusting the levers *l* and *n*, racks *p*, and arms T; motion is then given to the crank *c;* a reciprocating motion is given to the saw-frame C, and a lateral vibrating motion is given to the saws U U, by means of the arms I and T, levers *l n*, and racks *p*; and the saws will consequently cut angularly with the sides of the saw-frame, and the saws V V will cut parallel with the sides of the gate.

Claim.—Giving the saws U U a lateral vibrating motion, while the the saw-frame or gate C is being operated by means of the rods R S attached to sliding frame P, in combination with arms I T, levers *l n*, and racks *o p*.

No. 15,383.—John M. Mott, Jr.—*Improved Marble-Sawing Machine.*—Patented July 22, 1856.

The marble block M to be cut tapering, according to the dotted lines *w l* and *t p*, is set into the frame of the machine. The horizontal saws S attached to the gate C are adjusted over the lines to be cut, by means of set-crews *g* in the head D of guide-rod *d*. The adjustable guide-bars *y* are now passed through the slides *z* on the guide-rods *d*, one rod parallel to the line *w l*, and the other parallel to the line *t p*; and when the saws are set in motion, they will cut a taper according to the lines *w l* and *t p*.

The inventor says: I do not claim the manner of suspending and driving the saw-gate, nor the method used for raising the same, nor the mode of supplying water to the saws, nor the use of adjustable guide-bars, guide-rods and slides; for these have been long known, and much used.

But I *claim* the use of adjustable guide-bars, guide-rods and slides on the guide-bars, or their equivalents, substantially as described, in combination with the slides carrying the saws, and for the purpose specified.

No. 14,995.—Josiah Ashenfelder.—*Improvement in Marble-Sawing Machines.*—Patented June 3, 1856.

To raise the drums A A^1 and saws J, it is merely necessary to turn the drum F, which will wind around it the chains by which they are suspended.

To saw at an angle, the chains must be adjusted by which the saws are hung on the pins K on the drum A.

Claim.—Operating the saws by means of pins K and shaft L attached to the drums A A^1, in combination with connecting-rods M M and slotted guide-bars S S, when the above parts are constructed, arranged, and operated substantially in the manner and for the purpose set forth.

No. 15,713.—Jose Toll.—*Improvement in Marble-Sawing Machines.*—Patented September 9, 1856.

The two sets of saws are attached to the frames H *h*, which are secured to fenders J *j*. In operation, both sets are simultaneously drawn forward by means of a crank; each set is compelled, by its respective guide-strips F and *f*, to move in a path parallel with its saw blades, the links K permitting lateral divergence while causing both sets to advance and recede together.

The inventor says: I am aware that there have been heretofore machines for sawing marble in taper form, and therefore make no claim to such; but I *claim* the particular combination and arrangement of the fender bars J J *j j*, with the adjustable guide-pieces, when the same are constructed and arranged to operate in relation to each other in the manner and for the purposes set forth.

No. 15,419.—Lewis S. Fischer.—*Improvement in Machines for Sawing Marble.*—Patented July 29, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Operating the saws *f f* by racks *e e* and cog-wheel *d*, in combination with the guides *z z* and *m m*, when arranged and operated in the manner and for the purposes set forth in the foregoing specification.

No. 16,086.—William D. Gallaher.—*Improvement in Machines for Sawing Marble.*—Patented November 18, 1856.

The axis C of the two beams R C D and D^1 vibrates vertically, the beam having been adjusted to the same angle with the supporting frames A A *a*, and being retained in this position by means of a screw-pin in the connecting arc E, which is attached to the beam R C D. The two beams form, with the beams F and G, parallel joints, to each of which one end J of the two frames H for containing the saws is attached by means of pivot I. The frames H for containing the saws are supported at their other extremities K K, and work on the pivots L, in the parallel joints placed in the frames M, in a vertical position, and are so arranged as to pass one above the other without contact in crossing. Motion is imparted to this machine by applying power at the point R of the vibrating beam R C D.

Claim.—The frames H H, and the mechanism connected therewith, when constructed and arranged to operate in relation to each other in the manner and for the purpose set forth.

No. 14,823.—Samuel Nickelson.—*Improvement in Machines for Sawing Marble in Kerfs of varying Angles.*—Patented May 6, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The adjustable or sliding bars H attached to the bars E, as shown, when said bars are curved or bent so as to form saw-frame guides, in combination with the pivoted pitmen L L and eccentrics K K on the shafts F F, whereby the saw-frames and the devices for drawing them are all attached to and move with the bars H, thereby allowing the saws to be adjusted more or less angularly with each other, and at required distances apart, with the greatest facility.

No. 14,613.—Henry W. Hunt and John Sands.—*Improvement in Machines for Mixing Lime and Sand for Mortar.*—Patented April 8, 1856.

The shaft C being drawn around by a horse, the wheel D spreads out the lime and sand upon the bed, and the drag E gathers it in a narrow ridge, so that it can pass through the door F. The drag E may

be adjusted laterally upon the bed A by means of the pinion H and rack-bar G.

Claim.—The combination of the annular bed A, wheel D attached to the rotating shaft C, and drag E; the above parts being constructed and arranged substantially as shown, for the purpose specified.

No. 15,847.—Benjamin F. Field.—*Improvement in Machines for Mixing Mortar.*—Patented October 7, 1856.

The operation of this machine is as follows: The machine is taken to the sand bank and placed with the top part A of the revolving cylinder uppermost. The clamps O are unhooked and taken off, and the top part A of the cylinder is raised by means of the chains, pulleys, gears, and crank, E, F, G, H, etc. The bottom part B of the cylinder is then filled with sand and water; the top A is replaced and secured; and as the machine is drawn along, the cylinder revolves on the ground upon its fellies D, mixing the mortar in the most efficient manner. When the machine is to be unloaded, the top A is removed and the wheels P are made fast by the hubs N to the axles I of the cylinder; as the machine is now drawn forward, the bottom part of the cylinder B is turned over, dropping the load to the ground.

Claim.—The use of a revolving box, of a cylindrical or other form, made to roll upon the ground for the purposes of mixing the mortar by the action of the cross-rods, substantially as described, whilst at the same time it serves to carry the material from place to place; in combination with the method, substantially as described, for discharging the mortar from the revolving-box.

No. 15,230.—John Grason.—*Improved Machine for Sawing Stone.*—Patented July 1, 1856.

A reciprocating carriage frame, composed of the rack-beam G, the uprights I I, and the braces H H, is combined with the saw-frame which carries the saws q q^1 in such a manner that the said saw-frame can be moved vertically the entire length of the said uprights I I. The reciprocating carrying frame, which is combined with the saw-frame that carries the saws p p^1, is composed of the rack-beam G^1, the uprights I I, and braces H^1 H, arranged and combined with the saw-gate in a similar manner as the carrying frames G, I I, H H. A toothed wheel L, whose bearings are connected to the sliding-beam N, is placed in such a position that it is at all times in gear with the rack-beam G, while it can be thrown into or out of gear with the rack-beam G^1 by means of lever O.

Claim.—Operating double sets of saws, arranged at right angles with each other, by means of the power-moving rack-beam G, combined with the rack-beam G^1 by means of the toothed wheel L, which works upon the adjustable sliding-beam N, substantially as herein set forth.

No. 14,656.—William B. Hatch.—*Improvement in Straining Marble-Saws.*—Patented April 15, 1856.

The saws Q are strained by tightening the bands S by means of the nuts *h*, which work on right-and-left-hand screws.

Claim.—The rectangular saw-frame, constructed with centre-bars R and tension braces S, for straining the saws Q, in the manner and for the purpose set forth.

No. 14,684.—Henry H. White and Edward A. Gray.—*Improved Stone and Marble Saw.*—Patented April 15, 1856.

The inventors say: We are aware that notched disks and rollers with chilled projections have been used for cutting and dressing stone, by rolling them over the same with pressure; but these are not saws, in the true sense of the term, and do not act in the same manner; therefore we do not claim such. But we *claim* cast-iron saws with chilled teeth, for the purpose of sawing stone.

No. 15,526.—St. Julien Ravenel.—*Improvement in Artificial Stone.*—Patented August 12, 1856.

The material for the manufacture of this artificial stone is composed of two parts of pulverized marl and one part of slacked lime; these are mixed and moistened sufficiently to be moulded, and when brought into the desired shape, they are exposed to the influence of the atmosphere, and by it they will become sufficiently hard to be used as a substitute for stone for building purposes.

Claim.—The described substitute for stone, marble, or brick, produced substantially in the manner set forth.

No. 14,824.—Robert Neisch.—*Improvement in Preparing Artificial Stone.*—Patented May 6, 1856.

By adding cold solutions of alum or ammonia, the calcined plaster must assume the consistency of mortar, when it is dabbled into the mould in the same way as the clay is worked into moulds in the potteries. The newly formed article is then left for some time in a dry atmosphere, and finally immersed in a boiling hot solution of alum, and suffered to cool therein. When the article, after the immersion, is entirely dry, it will have all the hardness required for practical purposes.

The inventor says: I do not claim the combination of alum solution with commonly calcined plaster of Paris or gypsum, as I am aware that such mixture has before been used; but I *claim* the preparation of artificial stone by treating plaster of Paris, previously calcined, together with sulphuric acid, with solutions of alum and carbonate of ammonia.

No. 15,335.—A. M. George.—*Improved Stone-Dressing Machine.*—Patented July 15, 1856.

The stone M to be dressed is placed upon the carriage B and underneath the cutters I; motion is then given to one of the shafts K, and the arms L act upon the rollers J of the toggles G, the arms on one shaft forcing the cutters I down upon the stone, and the arms on the other shaft raising them, the stone being fed underneath the cutters by the carriage B.

The inventor says: I do not claim separately the toggles G, with cutters I attached; for they have been previously used.

But I *claim* as an improvement on the stone-dressing machine of Nichols & George, patented December 18, 1855, the toggles G, with the rollers J and knives or cutters I attached, in combination with the rotating shafts K K, with the adjustable arms L upon them.

No. 15,591.—William M. Barton, assignor to Himself and Robert M. Barton.—*Improvement in Machines for Drilling and Dressing Stone.*—Patented August 19, 1856.

The pitman J, which is operated upon by a crank and fly-wheel I, is not directly connected with the lever L, which causes the drill Q to rise and to descend; as in such a case the drill would advance its full stroke at each revolution of the crank, and would not advance steadily, as is required for drilling a hole. By attaching the pitman J to a stiff spring T, which latter is attached to the lever L near its fulcrum U, the crank and pitman are permitted to continue their motion at full stroke, when the drill and arm L are arrested.

Claim.—The arrangement described of the drill *a* on one side of the slab or stock A, and the crank F, and connecting-rod J on the other with the spring T and vibrating arm L to connect the said drill and connecting-rod, as set forth.

No. 14,495.—Josephus Echols.—*Improvement in Stone-Drilling Machines.*—Patented March 25, 1856.

The water enters the cylinder A and is injected into the cup *g* through the openings *c*, the valve D being in a position so as to close the apertures *c c* in the bottom and leaving open those in the top; cup *g* lifts the griper F and the drill-bar, until spring h^1 comes in contact with the valve D, and causes the water to escape through the apertures *c c* into the cup g^1, thereby driving the tube B downwards. The ring H releases the griper F and the drill is driven into the stone. The turning of the drill is effected by the action of the water on the spiral vanes *p p*.

Claim.—1st. The cylinder A with the apertures *c c* in its heads, the double-valve D with its hollow-stem *d*, and the tube B with its cups *g* g^1, all combined, arranged, and operating substantially as herein set forth.

2d. The gripper F, constructed as described, and operating in combination with a ring H, as herein set forth, to gripe and let go the drill-bar E.

3d. Furnishing the interior of one of the metal cups g g^1 with spiral vanes, to be acted upon by the water for the purpose of turning the bar at every stroke, substantially as herein set forth.

No. 15,410.—Henry J. Behrens.—*Improvement in Machines for Sawing Stone in Taper Form.*—Patented July 29, 1856.

The nuts C into which the saw is fastened are mounted on the shafts *b* provided with right-and-left screw-threads *f* running from the centre of the said shafts. A reciprocating motion is imparted to the gate *a* by means of a crank and pitman, at the same time that a revolving motion is imparted to the shafts *b* by means of the crank *f*, levers *d*, and rod *e;* by this combined motion the saws will cut straight cuts tapering towards each other.

The inventor says: I do not claim giving the saw a compound motion, irrespective of the means.

But I *claim* giving to a saw placed in a line inclined to the line of motion of the saw-frame a lateral motion, independent of the motion of the frame, or at right angles to the line of motion thereof, by means of the several devices, substantially in the manner and for the purposes set forth.

No. 15,380.—Matthew J. McBird.—*Improved Machine for Sawing Stone or Marble.*—Patented July 22, 1856.

The stone F is placed on the bed E, and by turning the arms *j j*, the turn-table D is caused to revolve, thereby enabling the operator to adjust the stone or marble F in any desired position under parallel saws *h h h;* said saws are then made to saw down through the stone F, cutting one side of the tapering pieces *o o*. The saws are then elevated, and the turn-table can be turned to any desired angle, according to th shape of the piece to be cut. By operating the arms, a lateral motion can be imparted to the table E, affording the means to cut tapering pieces.

Claim.—The combination of the turn-table D and the lateral moving platform or bed E, when connected and arranged substantially as shown, so that, when the turn-table D is revolved, the stone or marble F will be brought in oblique positions under parallel moving saws *h;* while the platform or bed E, when that is given a lateral transverse movement to the parallel position of screws *h*, the stone or marble F is given a corresponding movement and brought to the position required, for the purposes set forth.

No. 15,289.—Charles Frost and A. W. Webster.—*Improved Machine for Quarrying and Cutting Stone.*—Patented J ly 8, 1856.

The cutters I, as they pass around, are drawn inward when above the shaft E, in consequence of the pins *h* bearing against the arms J; but as

the cutters pass around below the shaft E and pass off the end of the arm J, the springs *i* throw the inner ends of the stocks H against the cam M, and the teeth of the cam, as said cam rotates rapidly, give a vibratory motion to the stocks H, and the cutters I are forced rapidly in and out from the lip *e* of the pulley G, the cutters making a groove into the slate and acting upon it till the pins H are caught by the opposite end of the arm J, when the cutters are again drawn inward and the inner ends of the stocks freed from the action of the cam M.

Claim.—We claim the combination of the cutter-stocks or blocks H and cam M, the stocks or blocks being pivoted to the pulley G, which is placed on a shaft E in the frame D, and the cam placed loosely on the shaft E.

No. 15,892.—John North.—*Improvement in Sawing Stone.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—For sawing two inclined sides of a slab of marble or stone at one operation. The two inclined reciprocating saws $a\ a^1$, connected with one and the same rotating driving-shaft, by the oblique connecting rods $c\ c^1$, each rod having four joints $o\ o^1$, m^2, and m^3, as they are set forth, the whole being arranged and operating in the manner and for the purposes herein set forth.

No. 15,299.—C. A. Mills.—*Improved Stone-Sawing Mill.*—Patented July 8, 1856.

The saws are mounted on the top of a frame A, and are worked by the usual arrangements of working beams and connecting-rods E^1; then the feed-plates H upon the frames are brought into contact with the feed-knuckles *i;* the pins *f* in the sides of the plates, coming against said knuckles, bring the dogs *h* on the inner side into action with the ratchet-wheels *d* and screwed shafts *e;* they, acting upon the collar by their nuts, draw the saws outward to any point desired, only one plate acting at a time, the motion being alternate. The stone is moved up to the saws by the rock-shaft, having its motion communicated to it by the working-beam E (fig. 1). The connecting-rod Z sets the upright arm V^1 in motion, by which the ratchet-wheel R and pinion R^1 are moved by the dog A^1; this operates the horizontal wheels S^1, supported in position by the frame F^1; the wheel S^1 then turns the screwed shaft M, by which the stone is fed to the saw at pleasure.

Claim.—Operating the saws, when arranged upon the top of the frame A, so as to work at right angles to each other by means of the feed-plates H and knuckles *i*, in combination with the mechanism for elevating the block of stone.

No. 16,035.—Thomas Maycock, assignor to Himself and Henry Rice.—*Improved Drain-Tile Machine.*—Patented November 4, 1856.

By the motion of the plunger G to which the ring I is attached, the clay in the box C is forced into the die B, and the tile is formed. By

making the plunger G smaller than the cylinder D, the plunger can easily be withdrawn from the cylinder, which otherwise would be difficult to withdraw, on account of the adhesive power of the clay.

Claim.—The combination of the annular ring I with the plunger, the latter having a smaller diameter than the ring and cylinder, constructed, arranged, and operating substantially in the manner and for the purpose set forth.

No. 16,021.—L. D. Phillips.—*Improvement in Trowels.*—Patented November 4, 1856.

The chamber A being filled with mortar, the operator, by taking hold of handle I, places the hollow bottom in contact with the wall; gauges E being, suitably adjusted, prevent one of the trowels D from coming in contact with the wall, while the other D^1 smooths the plaster as the implement is operated, and *vice versa*. The handle I serves the double purpose of operating the implement on the wall, and also of operating the follower G, which presses the mortar from the chamber A. After all the mortar is discharged from the chamber, and handle I is relieved from pressure, the reactive force of spring B causes the follower G to resume the position as shown in the engraving.

The inventor says: I do not claim a mortar chamber, having a follower operated in it, as that has been heretofore known.

But I *claim*, 1st, the open-bottomed chamber provided with flanges or trowels D D, arranged in the manner and for the purpose described.

2d. The adjustable gauges E E, as applied to my trowel, operating in the manner and for the purpose described.

3d. The general arrangement of the follower and its appendages, viz: springs B B, guide or brace C, and handle I, in the manner and for the purposes described.

No. 16,139.—Edwin Bennett.—*Improvement in Earthen Vessels for Hermetically Sealing Purposes.*—Patented December 2, 1856.

The nature of this improvement will be understood by reference to the claim and engraving. The process of sealing this earthen vessel is performed by pouring molten wax into the groove between the lid and top of the jar, the porous surfaces absorbing the beeswax, thus securely closing up all parts.

The inventor says: I am fully aware that rims, ridges, grooves, or gutters, and also ground surfaces, have been employed; and also that in some kinds of jars or vessels, formed from plastic material, the lower surface of the lid and the upper surface of the vessel or jar have been left unglazed; and, consequently, I disclaim all such.

I *claim*, in the manufacture of earthen vessels, constructing the covers or lids of such vessels with the bevelled or sloping edge *d d* and plane surfaces *e e* unglazed, or in the biscuit state, when said lid or cover is used, in combination with a vessel the contiguous surfaces *b b c c* of which are also left unglazed, and in an absorbent state, for the purpose set forth.

No. 14,537.—Philip Schrag.—*Improved Mould for Earthen Vessels, Pots, &c.*—Patented March 25, 1856.

The part F is made so as to slide on D, and to fit to the bottom part E. In pushing F down, the lining of India-rubber will be peeled off the sides of the mould.

I do not claim the turning of earthen vessels in moulds by chablons, nor the mere use of a lining to prevent adhesion of the clay to the mould; but I *claim* the combination of the mould, made in two separate parts, one F for the sides, the other for the bottom E of the vessels, with the lining of the same with India-rubber, or any other suitable material which is fastened on both parts of said mould, in the manner and for the purpose substantially as herein described.

XVI.—LEATHER, ETC.

No. 16,128.—George C. Todd.—*Improvement in "Edge-Keys" for Making and Polishing the Edges of Boot and Shoe Soles.*—Patented November 25, 1856.

This key is represented in two views in the engraving. The polishing edges C D are fastened to the shank B of the handle by a screw-bolt. The improvement consists in using these turned disks C D, instead of using edge-keys which are filed by hand.

Claim.—A turned or circular edge-key, constructed substantially as described and for the objects specified.

No. 14,432.—Lorenzo Stratton, assignor to Lorenzo Stratton and Luther Hill.—*Improvement in Manufacture of Boot and Shoe Soles.*—Patented March 11, 1856.

The nature of this invention will be understood from the claim and engraving.

Claim.—The above described improvement in the manufacture of shoe soles, viz: striking them up in nests between formers and counter-formers B E F, substantially in the manner herein set forth.

No. 14,353.—Geo. Fetter.—*Improvement in Boot-Crimps.*—Patented March 4, 1856.

The nature of this improvement will be understood from the claims and engravings.

In the sectional fig. 4, (which is drawn on an enlarged scale,) L represents the leather, its ends being held between the pincers *n m n m*,

which can be made to descend by turning screw E, so as to stretch the leather over the instep.

The inventor says: I do not claim the method herein described of changing the relative position of the foot and leg by the regulating-screw D and its appendages, as other mechanical devices for accomplishing the same end might be substituted.

I *claim*, 1st, the crimping of the upper-leathers of boots, by confining and submitting them to the action of the leg A, and operated in the manner set forth, or any equivalent to the same.

2d. The radial adjustable guide C, with its traversing pincers *n m n m*, in combination with the leg A and foot B, the whole being arranged and constructed substantially in the manner and for the purpose herein set forth.

No. 16,123.—M. C. Chamberlin and W. Filkins.—*Improved Machine for Turning Boot-Legs.*—Patented November 25, 1856.

In using this machine, the crank *d* is turned until the plunger I arrives at the points *x* of the expansion tube *g;* the follower *h* should then be at the opposite end of the tube. The boot-leg is then pulled over the expansion leg *g*, and the straps attached to the hooks *i*. The gate *k* is then raised, and the follower *h*, by means of rack *e*, is adjusted to the length of the boot-leg, so that, as the plunger descends, the follower will ascend, pushing the leg, as the plunger and hooks draw it, within the tube. When the boot-leg is adjusted to the expansion tube, the crank *a* is turned, and the leg is drawn into the tube and thus turned.

Claim.—The expansion tube *g*, the rim-follower *h* encircling said tube, the disk-plunger J, provided with hooks *i i* and operated inside of said tube *g*, as described, in combination with racks E and *f* and pinion *o*, for the purpose of imparting adverse longitudinal motion to said rim-follower and disk-plunger, as set forth.

No. 14,380.—Sylvanus H. Whorf and Charles Rice.—*Improvement in the Application of Soles to Boots and Shoes by means of Pressure and Gutta-Percha or other Cement.*—Patented March 4, 1856.

The nature of this invention will be understood by reference to the claim. The machine for pressing the sole to the upper is illustrated in the engraving, where H represents a metal hollow last, into which steam can be introduced by means of pipe I, and the sole can be pressed to the upper by means of the pressing apparatus and the platen C.

Claim.—We are aware that a gutta-percha sole has been applied to a shoe by melting gutta-percha in a mould and subsequently pressing the shoe therein. We therefore do not claim such.

We are also aware that in book binders' presses and in smoothing irons, the platen of the one and the body of the other have been provided with a spare chamber for the reception of either steam, heated air, or other means of heating; we therefore do not claim such, as we use

heat not for either drying or smoothing alone, but for a different purpose, and in a process of manufacture wherein it has not been before applied, to our knowledge, in the way in which we employ it, being used by us for softening or melting gutta-percha after it has been applied to a last, as specified; and, therefore, we claim our improvement in the process of manufacturing and finishing shoes with either gutta-percha soles, or soles formed of leather and other material, and united to the upper and insole by means of gutta-percha, or its equivalent, and through the agency of pressing mechanism, as specified; our improvement consisting in supplying heat within a last by means of a chamber and pipe and steam, or means of heating said last, the same not only enabling the gutta-percha of the sole to be softened or rendered adhesive while it is being pressed upon the insole and upper, but also serving to smooth and finish the upper, as described.

No. 14,216.—John M. Wimley, assignor to Himself and Washington H. Penrose.—*Improvement in the Mode of Attaching Composition Soles to Boots and Shoes.*—Patented February 5, 1856.

The staples D (made of wire) are driven through the upper B and insole C so as to clinch on the inner side of the insole (as shown in the engraving) by coming in contact with the last, which at this part must be covered with metal.

The inventor says: I do not claim the mould, nor do I confine my claim to any particular form of the staples or nails by which the sole is secured to the boot or shoe; but I *claim* the use of the staples D D, in the manner substantially as described, for the purpose of attaching composition soles to boots and shoes.

No. 15,451.—James W. Wilder.—*Improvement in Machines for Cutting Out Soles of Boots and Shoes.*—Patented July 29, 1856.

Motion is imparted the machine from the driving-shaft B, which operates the lever E of fulcrum *f* by means of crank D and pitman F. The pitmen K and L impart a vibrating motion to the heads G and H around the points *p* and *q*. The knives *g*, curved to suit the contour of the sole to be cut, are fastened by means of clamp *h* to the heads G and H, and the leather being fed in on the table M, the soles are cut as the knives descend.

Claim.—Arranging and vibrating the knives around the centres *p q*, in the manner and for the purpose substantially as set forth.

No. 15,762.—George W. Griswold.—*Improvement in Metallic Braces for Heels of Boots and Shoes.*—Patented September 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I am aware a metallic plate has been inserted in the heel and counter of an overshoe for the purpose of forming a

bearing or nut for a screw to pass through to hold the overshoe to the inner shoe; this I do not claim, as it will not effect the object I have in view.

I *claim* the application to boots or shoes of a brace or support B to heel and counter D to prevent one from twisting or running over on the other, substantially as herein described.

No. 14,080.—Sylvanus H. Whorf, assignor to Himself and Charles Rice.—*Improvement in the Manufacture of Boots and Shoes.*—Patented January 8, 1856.

The inventor says: I do not claim uniting the soles to the upper by means of cement made to extend through the upper alone; but what I do *claim* as my improvement in the manufacture of a shoe by connecting its soles and upper, is, extending the cement not only through perforations in the upper, but in or through the perforations made in or through the insole or the outer sole, or both; the same presenting great advantages not only in securing the parts together, but in rendering them water-proof when the cement employed is of a character to resist water.

No. 14,060.—Samuel R. Jones.—*Improvement in Peg-Cutters for Boots and Shoes.*—Patented January 8, 1856.

The nature of this invention can be understood by reference to the claim and illustrations.

Claim.—My claim is the above described and shown employment of the spring *f* in connexion with the curved surface *l* of that end of the handle (double lever) upon which the float G is pivoted, for the purpose of rendering the float capable of self-adaptation to the surfaces to which it is applied.

No. 14,269.—Alfred Swingle, assignor to Elmer Townsend.—*Improvement in Pegging Boots and Shoes.*—Patented February 12, 1856.

The knife G is attached to the handle A by means of a pin *c*, and moves upon it as a fulcrum, when pin *e*, together with the haft C, is made to descend. During the time that the pin *e* moves through the oblique portion of the slot *f* in the knife, the latter is moved upon its fulcrum *c* so as to cause the lower edge of the knife to move across the peg-wood *g*, and separate one peg from it. During the above described operation, the workman holds the spring-catch K back with one finger of his hand; but whenever he wants to stop the side motion of the knife, (so as to shut up communication between H and *b*,) he removes his finger, when K will assume the position represented in fig. 3. Chips or splinters will escape through passage L. The engraving represents only part of the pegwood-carrier H and the spring *h* which presses forward the peg-wood *g*.

Claim.—The above-described new arrangement of the cutting-knife G, with respect to the pegwood-carrier H and the peg-receiver *b*, and

so as to operate against the side of the peg-wood *g* and cut into it from side to side, as specified.

Also, arranging or combining with the cutting-knife G and the handle A, as described, a spring-stop or catch K, so applied as to operate and retain the knife in position to shut off communication between the feeding-trough H and the peg-receiver *b*, under circumstances as stated.

Also, arranging in front of the peg-receiver and front of the knife a waste receiving and discharging chamber or mouth L, the same being made to operate as specified.

No. 14,020.—Waterman B. Johnson.—*Improvement in Machines for Pegging Boots and Shoes.*—Patented January 1, 1856.

The shoe is secured in the jack C, and the guard b^1 adjusted to the required distance of the row of pegs from the edge of the sole. The pin *k* is then inserted into the perforation k^1 (fig. 2) that will insure the clamp F the motion necessary for the desired distance between the pegs. The base *d* of the jack C is inserted between the jaws of the feeding-clamp, and the ratchet *b* (fig. 3) being removed from lever G, the knob *f* of the lever G is placed in a groove *c* of the jack C. The action of the spring *w* on the lever G tilts the jack until the sole of the shoe reaches the stop *x*, the edge of the sole being placed against the guard b^1. The cam-wheel B is then moved sufficiently to permit the spring-ratchet *b* to engage with one of its teeth the lever G, at which moment the jaws of the clamp F tighten upon the base *d*, and the shoe is ready for the awl perforation. The continued rotation of cam-wheel B brings radial stud h^1 in contact with the portion p^1 of awl-carrier, giving it a smart blow; the stud s^1 strikes the inner arm of the lever t^1, throwing up the awl-carrier, and removing the awl from the perforation. The curve of the cam-rim acting on projections d^1 d^1 of awl-frame (fig. 4) moves it, so as to bring the peg-tube u^1 over the perforation just made, to which the peg-wood is fed by means of any of the well-known devices. Radial stud h^2 strikes a seat of driver-slide 1 (fig. 4) similar to p^1 of awl-slide, driving the peg into perforation made by awl-stud s^2, then strikes lever t^2 and throws up the driver.

Claim.—What I claim as my invention is as follows:

1st. The vibrating jaws *g h*, constructed and operating substantially as described, for feeding the shoe, whether actuated in the manner set forth or in any other way which will enable them to perform the aforesaid function.

2d. The combination of lever G, stop X, and swinging-jack, constructed, arranged, and operating substantially as specified, for submitting the surface of the sole to the awl at a given angle in every position, substantially as herein set forth.

3d. The adjustment of the drivers on the perimeter of the cam, substantially as and for the purpose set forth.

4th. The double-binding slide-clamps for screwing the last in the jack, constructed and operating substantially as and for the purpose specified.

No. 14,370.—George Schuh and Phineas L. Slayton.—*Improvement in Machines for Pegging Boots and Shoes.*—Patented March 4, 1856.

The last A^2, with the shoe upon it, is secured upon the uprights R^1 R^1, and the peg timber I^1 is placed in the feed-box Z. Motion is then given to the driving-pulley N, and the cam L raises the plunger I, while lever A^1 throws back the box Z, so that spring K may force the plunger I downward within the cylinder E, and cause the awls *g g* to be driven into the sole. When plunger I is raised, the spring B^1 will throw the box Z towards the cylinder, and the small cylinder C^1 will be placed underneath, and in line with cylinder E; and when the plunger I again descends, the plunger D^1 will be forced downwards, the projection a^1 driving the pegs into the holes in the sole previously made by the awls. During the outward movement of the box Z, the peg timber I is fed towards the cylinder C^1 by the rollers h^1 h^1, which are operated by the pawl k^1; and the pegs are cut off from the timber by the cutter g^1 at the proper time, in consequence of the pin d^1 striking against the end of slot c^1, in the end of lever F^1. Lever E^1 throws the plunger D^1 upward in the cylinder C^1, when it is drawn back from cylinder E.

The shoe is fed along underneath the rest i^2 by the screw L and shaft K^1, the latter being turned by pinion M^1 and bar S; and the shoe is turned around when the toe and heel are pegged, in consequence of the pins d^2 striking against the end of shaft N^1, and the screw working into the rounded ends of rack Q, thereby turning the plates P^1 O^1 and shaft N^1. When the plunger I is raised, the friction block X will be pressed against it by the cam U, and will regulate the force of the blow of the plunger, and also its stroke; that is, when the plunger I strikes against the plunger D^1.

In figure 4, two positions of the parts are represented by full and by dotted lines.

The inventors say: We do not claim the plates or tables P^1 O^1 and rack Q^1 attached to the shaft N^1, for the purpose of feeding the boot or shoe to be pegged, as these devices are applied in the pegging machine of J. J. Greenough, patented January 11, 1854; nor do we claim the vibrating frame J^1 and screw L^1, as they are employed in the pegging machine of Joel Robinson, patented October 31, 1852.

But we do *claim* feeding the boot or shoe to the plungers D^1 I, so that it may be punched and pegged by means of the combination of the screw S^1, plates P^1 O^1, shaft N^1, frame J^1, and pins d^2, arranged and operated substantially in the manner as described.

We claim punching the necessary holes in the sole, and driving the pegs therein, by means of the plungers I D^1 fitted within separate cylinders, the points and awls *g* on one plunger I making the necessary holes in the sole at one stroke, and the other plunger D^1 being driven down, and forcing the pegs into the sole by the plunger I at its succeeding stroke, substantially as shown and described.

3d. We claim the friction-box X, operated by the cam U, for the purpose of regulating the stroke of the plunger I, and also the force of its blow, as described.

No. 15,866.—Benjamin F. Sturtevant, assignor to Elmer Townsend.—*Improvement in Pincers for Lasting Boots and Shoes.*—Patented October 7, 1856.

The manner of operating this instrument is as follows: One of the handles C being held in each hand, the pincers A A^2 are closed upon the leather upon one side of the last, and the pincers B B^2 upon the leather on the other side. The two handles are then brought together as in figure 1, and are held by one hand, while the leather is secured to the last by the other.

The inventor says: I do not claim a lasting-tool in which the two sets of jaws are brought together by means of a screw, as this is a well known method of constructing such tools.

I am also aware that the exterior jaws of such tools have been caused to close upon a central step or block, thus forming a species of compound pincers or lasting-tool.

But I *claim* the described instrument for lasting boots, constructed and operating in the manner substantially as set forth.

No. 14,140.—Jean Pierre Molliere.—*Improvement in Machines for Hammering Leather for Soles and Heels of Boots and Shoes.*—Patented January 22, 1856. Patented July 22, 1853, France.

The cams D upon the revolving shaft E play within slots in the hammer rods C C^1 C^2, so as to lift them, and let them fall at proper times. The said hammer rods are hollow, so as to allow their weight to be increased or diminished by putting into or taking out of the hollow part heavy bodies. To prevent the hammer from striking the stone when no leather should happen to be there, the hammer is held back on the upper side of the frame socket *s* through which each hammer-rod slides.

Claim.—The hammering of sole-leather upon a hard surface, after it is cut into heel and sole strips, for the purpose of closing its pores, without any displacement thereof, in order to render it water-proof, by means of steel hammer heads, of slightly rounded face, attached to the hollow rods C C^1 C^2, which may be weighted at pleasure, and shall be so governed by a cam movement that no two strike at the same moment, while they are kept by their shoulder-piece from crushing the leather after it is hammered; the whole constructed and operated substantially as herein described.

No. 14,426.—William Wells and Mellin Bray.—*Improved Machine for Cutting Out and "Skiving" the Soles of Boots and Shoes and also for Cutting the "Rands" therein.*—Patented March 11, 1856.

The leather *y* is placed upon block H and moved around, together with stock F, by means of the spur-wheel E, the rack *a*, and the rollers *c c*. The edge of the leather passes between the rollers P L, and is cut out by the knives Q R *r*, corresponding to the form of the plate G,

which, bearing against the roller K, remains in contact with the vibrating bed I, as shown in figure 2. The skiving knife R is raised free from the heel of the sole as set forth in the claim.

Claim.—Operating the knife R, which is attached to the bar S, by means of the lever *u*, rod *m*, with plate *l* attached, on which plate the bar S rests, and the ledge T on the heel of the stock F, substantially as shown for the purpose specified.

We further claim the knives Q R *r*, when attached to or connected with an elastic platform I, substantially as shown for the purpose specified.

No. 14,951.—Charles T. Eames.—*Improvement in Boot-Trees.*—Patented May 27, 1856.

The lower end of rod D carries a cam F which works against an inclined plane G, formed with lips C C to embrace projections *d d*. When the cam is moved upward, it will separate the two parts A B; when pressed downward, it will draw them together. When the rod D is raised, the locking catch H will be forced by its spring K into a recess M, formed in the foot part C, the catch serving to confine the foot C to the leg portion B. During the depression of the rod D and the cam F the catch H will be moved out of the said recess so as to enable the parts B and C to be separated.

The inventor says: I do not claim the employment of either two levers or cams, arranged so as to simultaneously operate against both the upper and lower parts of the back portion of the leg of the tree; but I *claim*—

The arrangement or mode of applying a single cam F and inclined plane G with respect to the foot and leg portion of the boot-tree, whereby the said devices are made to first perform the function of setting the foot part C of the tree firmly into the foot of the boot; and next that of stretching the leg of the boot, the application of stretching mechanism directly to the upper part of the leg of the tree being rendered unnecessary.

No. 14,856.—Benjamin J. Day.—*Improvement in Bridle-Bits.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim the attaching of a gum elastic strap or other elastic material to the upper ring of the common curb and lever bit by one end, the other extending a few inches out on and attached to the rein, which itself is attached to the lower ring; nor do I claim straight, curved, and spiral springs. But I *claim* the screw *h*, the spring and folding limb *c*, applied and operating substantially in the manner described, by which the common curb and lever bit and the non-curb and lever bit can be changed at pleasure from one to the other.

No. 15,107.—H. G. Robertson.—*Improvement in Machines for Stuffing Horse-Collars.*—Patented June 10, 1856.

The rack *c* ascends during the early part of the plunger's C advance stroke and descends towards the close of the return-stroke, and carries with it downwards the straw to the bottom of the hopper, furnishing a new feed to the plunger for its next advance stroke, the rack having teeth *s* which hold the straw.

To prevent the straw unduly rising by the action of the toothed rack *c*, two or more vertically reciprocating fingers *d* are employed, which move up and down, and simultaneously with the movement of the rack *c*, but in reverse directions to it; in this manner the straw is kept down from rising in a mass, (the teeth of the rack, though set inclined, having a tendency to produce an undue rising.)

Claim.—In combination with and specified relation to the movement of the reciprocating plunger or stuffing-rod C, the intermittently reciprocating mechanical feed formed by the bearded rack or toothed slide *c* and retaining fingers *d*, operating together simultaneously in reverse directions within the hopper.

No. 16,107.—Joseph Albright.—*Improvement in Machines for Stuffing Horse Collars.*—Patented November 25, 1856.

The straw in the hopper A is seized by the teeth of the feed-wheel *a*, which revolves in the direction of the arrow, and carried into the recess c^3, where, by the action of the reciprocating plunger B, it is forced into the collar, one end of which is attached to the funnel C.

The inventor says: I do not claim separately the toothed revolving feed, arranged for operation in connexion, from the outside, with a rack-built hopper, as such is described in the patent granted to Gerad Sickles, November 20, 1855.

Nor yet do I claim, separately of themselves, the crooked fed straw retaining spaces c^3 described, as the equivalent of such is found in the bearded rack described in the patent of H. G. Robertson, June 20, 1856.

But I *claim* in horse-collar stuffing machines the intermittently revolving toothed feed-wheels *a*, when arranged at the back and on the outside of the hopper in combination with the crooked fed straw retaining spaces or chamber c^3 at the bottom of the hopper, and extending backwards as shown and described; the teeth of the wheels, *a* which work from the outside at the rear into the hopper, urging the slip of the straw down the inclined rack or back of the hopper, and feeding it into the retaining spaces c^3 to wait the action of the plunger, as set forth, and whereby the many advantages specified are obtained.

No. 14,803.—Melvin C. Chamberlin.—*Improved Mould-Press for Horse-Collars.*—Patented May 6, 1856.

When the collar is put into the mould, the rods *a a b b* are allowed to drop down so as to bring the plate *d* to rest upon the rim D D. The

plate *d* is thus put below the neck of the collar, and then, by turning the hand nut *e*, the collar may be stretched and shaped.

Claim.—Giving shape and form to horse-collars by means of a mould press.

No. 15,789.—G. G. Townsend.—*Improvement in Feather-Edge Gauges.*—Patented September 23, 1856.

The feather-guard F forms a throat with the knife K, after the manner of a joiner's plane, and the point of the guard being split or nicked, so that the point of the knife may lie in it, effectually prevents the knife's point from cutting into the upper during the operation of trimming, while by the additional rigidity which it confers upon the knife, it very much improves its powers of shaving and trimming the welt.

Claim.—The combination of the knife K, and feather-guard F, for the purpose set forth—they being constructed and arranged substantially as described.

No. 14,469.—Nathan Post.—*Improvement in Harness Buckles.*—Patented March 18, 1856.

In order to apply the block B to the buckle L, the tongue C is put through a hole of a strap, after which the slot A of the foundation B is placed upon the roller O, and the whole sewed and riveted together.

Claim.—Attaching to a three-barred buckle, 1st, the flanges N N N N, which keep the trace or strap in the centre of the buckle.

2d. The tube O on the centre bar, made loose, so as to revolve thereon, for the purposes described.

3d. The block or foundation B, with its stationary tongue C, made, constructed, and applied to the buckle, in the manner above set forth and described.

No. 14,477.—Wm. P. Thomas.—*Improvement in Harness for Shoeing Horses.*—Patented March 18, 1856.

It is the object of this invention to confine horses during the process of shoeing, and also to relieve the smith from the labor of sustaining part of the weight of the horse.

Claim.—1st. The combination of the windlass M with the traces *e e*, the tugs *t t*, and tail-lever or single-tree K, these or their equivalents, by means of which the horse is brought to his place, and secured from lateral motion, substantially as set forth.

2d. I claim the combination of the windlass L with the ropes *o o* and the hames *b*, these or equivalents, by means of which the horse is prevented from rearing or moving backward, in substance as set forth.

3d. I claim the combination of the cords *q q* with the pulleys *m m n n*, the breeching *d*, and the traces *c c*, such an arrangement of the parts

that the breeching *d* is firmly held in its place by the weight of the horse, substantially as indicated.

4th. I claim the combination of the back-band *f* with the part L, the pulley *v*, the rope *x*, and the breeching *d*, these or equivalents, by means of which the horse is prevented from raising his hinder parts, and the breeching *d* is prevented from rising up.

5th. I also claim the sliding-bar Q, by which the horse is prevented from pulling his foot away while the front shoes are being driven on, substantially as represented.

No. 15,993.—Noah Warlick.—*Improved Back-Band Hook for Plough Harness.*—Patented October 28, 1856.

To the band B, which passes over the back of the animal, is attached a hook H and guard G, by means of a strap S. The hook H is passed through one of the links of the trace-chain C; the guard G prevents the trace-chain from rubbing the sides of the animal, and the rise and fall of the chain cannot release it from the hook.

Claim.—The reverse hook H, in combination with the guard G enclosing the same, constructed, arranged, and operating as and for the purposes specified.

No. 15,057.—Charles K. Bradford.—*Improvement in Harness Trace Couplings.*—Patented June 10, 1856.

The fastening plate *d* is fastened to the whiffletree B by inserting the elongated tenon C in the slot *b*, and turning the former around. It is kept from turning by being pressed against the locking case by means of friction-bearer E.

The recesses *o o* of the button case serve to maintain the button with more certainty in its position by enclosing it.

Claim.—The combination of the India rubber plug or spring friction-bearer E, with the tenon button C, and its locking case A, the same being made to operate therewith, substantially as specified.

Also, arranging in the locking case, and transversly of its entering slot, the safety recesses *o o*.

No. 16,114.—William Crane.—*Improvement in Machines for Polishing Leather and Harness.*—Patented November 25, 1856.

The leather on the bed A is polished by rotating the pulley G, which will cause the tool *e* to pass over the leather, performing the required work. The tool is made with a smooth or grooved periphery, according to the nature of the work to be done.

Claim.—The suspended triangular swinging-frame C, having a socket or receiver D attached at one end, and a pitman or connecting rod F at the opposite end, substantially as shown; the whole forming an equal balance, giving a steady motion to the machine in operation.

No. 15,816.—Joseph Pyle.—*Improvement in Machines for Finishing Leather.*—Patented September 30, 1856.

The leather to be softened is drawn gently through and under the pin block *h*, which is caused to descend and rise to and from a corresponding block *r*, whence it is passed between the brush rollers *l*, and delivered from the machine.

The inventor says: I do not claim the form of pin-block, or the pin-block at all.

But I *claim* the combination of the pin-block *h* with its corresponding block, composed of wood or any malleable metal; the feed-rollers *m m*, composed of like materials, or of wood covered by India rubber cloth, as shown; with the corresponding brush-rollers *l l*, geared and arranged, set and driven, as set forth; for the purpose of softening leather or skins ready for finishing; or any other materials substantially the same, upon which it will perform the same operation.

No. 14,606.—William P. Gamble.—*Improvement in Machines for Polishing Leather.*—Patented April 8, 1856.

E is a lever which connects the rocking-frame C with a crank or to the rim of a wheel F by means of a wrist pin. The handle K is fixed to the lever E so as to bring its flint end *l* in contact with the strap *b*, when the lever E moves in a horizontal position. The leather may be removed without stopping the machine, by means of the treadle lever Q, rods R R, levers O O, and saddle pieces N N. The usual spring beneath the strap bed affords the proper support for the strap during the operation.

Claim.—Effecting the rectilinear motion of the flint or glass, when in contact with the leather upon the strap, by means of the compensating devices herein set forth and described; the said devices being constructed, arranged, and operating substantially in the manner described.

No. 15,121.—Charles F. Crockett.—*Improvement in Making Sheets of Leather from Curriers' Shavings, or "Buffings."*—Patented June 17, 1856.

The inventor says: I do not wish to confine myself to any particular kind of cement, although I have found India-rubber cement to answer the best purpose; nor do I wish to limit myself to the mode of applying pressure, as any mode will answer the purpose which will compress the sheet and lay the edges smooth, although I have produced the best result by rubbing and pressing the surfaces with what is known as "the currier's glass," which has the effect at the same time of glazing the surface.

Claim.—Making sheets of leather of any desired size and thickness of curriers' shavings or buffings, by lapping and cementing them together while in a moist state, and then subjecting the mass to pressure.

No. 14,211.—John B. Wentworth.—*Improvement in Machines for Softening Leather.*—Patented February 5, 1856.

The boarder F consists of sections *c*, each section being held in place by a bar *f*, which passes through all the sections and through the ends b^1 of the frame. The rest of the claims can be sufficiently understood by reference to the engravings.

The inventor says: I do not claim boarding a skin S by doubling it and performing the remainder of the operation between two boards by manual labor in the usual way; but I *claim* the combination of the roller G, the rotary boarder F, and the bar or concave E, arranged and made to operate together, substantially as set forth.

I also claim the combination of the holding and draft mechanism or rollers H I, with the boarding mechanism or rollers, the boarder and concave, or bar, as specified.

I also claim the napping or filing mechanism, (or roller M and bed L,) in combination with the boarding mechanism, or the holding and feed rollers thereof.

I also claim combining with the movable table or bed K the rollers G H and bed L, so that they may be moved simultaneously either towards or away from the boarder F, the bed E, and rollers I and M.

I also claim, when the boarder is made of a series of separate rubbers, springs, and a holding-frame, as set forth, applying the sectional rubber to the frame by means substantially as described, viz: by a bar *f* and a movable end b^1, whereby the rubbers may be either detached from the frame or maintained within it, as specified.

No. 15,807.—John Greenleaf.—*Improvement in Machines for Softening Leather.*—Patented September 30, 1856.

The nature of this invention consists in softening leather by placing the hair side of it between a revolving cylinder B, provided with a flexible surface, and a flexible surfaced moving carriage A^2 D^2, with the flesh side of the leather passing around the edge of a metallic blade I, placed nearly between the cylinder and carriage; and then turning the cylinder and moving the carriage with the leather thereon by any convenient motor until it is sufficiently softened.

Claim.—The combination of the blade I with the cylinder B and M, and apron carriage A^2 and D^2, for softening and graining leather, when arranged and operated essentially in the manner and for the purposes set forth.

No. 14,430.—Elisha Pratt, assignor to Elisha Pratt and Thomas Perkins Pingree.—*Improvement in Leather Splitting Machines.*—Patented March 11, 1856.

The journals *a* of the lower roll run in boxes *b*, which slide in bearings H, attached to the sides of the frame E. *d* is a plate suspended from the boxes *b* by the screws *c*. The plates and boxes are separated

by springs *f*. The position of the plates is regulated by the levers I, pivoted to the brackets K at *i*, and by the connecting rods L, thereby adapting the "throat" to the thickness of the hide to be split.

Claim.—So hanging and arranging the lower roll, as described, by means of the levers I, connecting rods L, and plates *d*, or their equivalents, that it may be depressed when required, for the purpose of relieving and adjusting the hide, as set forth.

No 16,205.—Frederick Berry.—*Improved Machine for Stamping Leather Combined with a Rolling Machine.*—Patented December 9, 1856.

Motion being imparted to the machine, the leather is placed upon table T and passed between the rollers R and R^1, which are operated by cogged wheels B and B^1. When the side of leather has passed from under the roller *r* and that roller has fallen upon the table, the end of the stamp lever L, by means of its connexion through lever *l* and F, is carried so as to be acted upon by one of the studs *a*, and the side of leather being guided upon the stamping bed D, an impression is received on the descent of the stamp. On the insertion of another side of leather between the rollers, the stamp is thrown out of gear, as represented in fig. 2.

Claim.—The roller *r*, which brings the stamp lever L into action with the studs *a*, when it falls off the leather on to the table, as the leather passes through the rolling machine, substantially as specified.

No. 14,698.—George W. Pruyne.—*Improvement in Machines for Raising and Creasing Leather Straps, &c.*—Patented April 15, 1856.

On the rear end of the two forks F^1 F^1 of the lever F are supported the journals of the lower roll G, whose grooves are in reverse to those of the upper roll C, as seen in fig. 2. The guides *b b b* correspond in width with the distance between the flanges *c* on one roll and the corresponding recesses *d* on the other. The guides are covered, so that the strap, in passing through its guide, shall not skew or twist.

The inventor says: I am aware that grooved rolls for creasing leather have been used; these, therefore, I do not claim. But I *claim*, in combination with the grooved rollers, one of which is yielding, the guides *b*, through which the creased part of the strap is drawn, and so that said guides shall serve to direct the finished strap as it passes through between the rolls.

No. 15,499.—Francis A. White.—*Improvement in Methods of Stuffing Leather.*—Patented August 5, 1856.

This improvement consists in applying tallow or grease to the skin or leather while it is in a wet state, and in beating said tallow into the leather so as to expel and take the place of water, the water being

more or less driven out of the skin by means taken to introduce the grease.

The inventor says: I am aware that other oil has been combined with hides and skins in the process of tanning, as in the American patent of Keeler. But my mixture of tallow and oil could not be so used; because the tallow and oil, on being brought into contact with water at the temperature used, would separate from each other, and the consistence of the mass of oleaginous matter used by me is such that nothing less than the pounding operation of a fulling mill, or other equivalent machine, would be sufficient to fill equally the pores of the skin with such a mixture. While, therefore, I disclaim the use of any such rotating apparatus as used by Mr. Keeler aforesaid, or that used by Vauquelin for charging skins, &c., with oleaginous matter,

I *claim* the mode of stuffing leather, substantially as set forth, whereby I dispense with the usual time required in drying before stuffing, and render the neck and flank parts a superior quality of leather.

No. 14,821.—Eugene L. Norton.—*Improvement in Machines for Figuring and Polishing Morocco.*—Patented May 6, 1856.

The tool J has on its arbor a pulley L, around which the cord *o* passes, having its ends secured to the frame C. The reciprocation of the cross-head will therefore cause the cord *o* to rotate the tool. The bed E being mounted on springs, allows the tool to pass over leather of unequal thickness.

Claim.—The rotating tool for polishing or figuring leather when such tool has imparted to it a greater velocity than that due to rolling simply, in the manner and for the purpose specified.

No. 14,534.—Samuel Green.—*Improvement in Tools for Figuring Morocco.*—Patented March 25, 1856.

Wooden tools for figuring are liable to be flattened down or broken off. With a tool of agate, flint, or similar material, said defects are obviated.

Claim.—Making figuring tools A for leather of agate, glass, flint, or other similar silicious materials, substantially as described.

No. 15,462.—Alfred Swingle, assignor to Elmer Townsend —*Improvement in Pegging Jacks.*—Patented July 29, 1856.

The last-holder A is sustained by a curved arm *a* extending from a straight slide C, into which two bolts E and F are fastened, whose dovetailed heads can be made to slide in the grooves *b* and a^1, crossing each other at right angles. By this arrangement the position of the last can be changed by moving the slide C when the two bolts slide in their respective grooves, and the last will describe an elliptical orbit. The last is secured by the screw-nut G, and, being supported by the two bolts E and F, is not liable to shake as would be the case were it made

to turn on one centre pin. If it is desired to raise or lower the last, then the two bolts E and F are adjusted in the vertical groove *b*.

The inventor says: I believe there is nothing new in sustaining a last by mechanism which will permit it to be revolved in two planes, and that this principle, though common both to my machine and that of Dewitt, was not the invention of the said Dewitt, nor is it claimed by him or by me.

I *claim* the arrangement and application of the trammel or grooved cross, its slide-bar and guide-pins, the last-holder and its sustaining arm, the same enabling advantages or new and useful effects to be attained, as specified.

No. 15,406.—Alfred Bailey.—*Improvement in Pegging Jacks.*—Patented July 29, 1856.

By lifting the last L, the spindle connected with the arm of the heel-piece is also lifted, and contracts the spring C sufficiently to give it force to hold the last firmly. The last can also be turned by turning the head-piece E down either way, so as to finish the edge of the shoe, by means of the bolt G.

Claim.—1st. The application of a spiral or other spring *c*, substantially as I apply it to hold the last L firmly in its place, and at the same time allow the head-pieces E and F to be put in any desired position without readjusting the last L or spring *c*.

2d. The arrangement by which the vertical head E may be turned vertically above the axis upon which it turns horizontally, in the manner and for the purpose substantially as described.

No. 15,055.—William W. Batchelder.—*Improvement in Hand-Pegging Machines.*—Patented June 10, 1856.

The knife G contains two grooves; the lower groove is made to allow the peg-wood to slip through; the upper groove is cut for the screw *g* to play in, also for the purpose of allowing the lower end of the knife to drop a sufficient distance, so that when the peg-driver is thrown up to the top of the peg-receiver it will shut off communication between the trough and peg-receiver, thereby preventing the peg-wood from passing under the peg-driver. When the awl *e* is driven into the leather, the foot-piece H is thrown forward by means of the wedge *o*; when the plunger is thrown up, the point of the foot is set into the leather, thereby moving the machine along by the force of the spring I bearing upon the joint of the foot, as represented in fig. I.

Claim.—The attachment of the knife G to the plunger B, and the arrangement of the upper groove in regard to shutting off communication between the trough L and peg-receiver, substantially as described.

Also, the combination of the vibrating foot-piece H with the lower end of the machine, operated by means of the wedge *o* and spring I substantially as specified.

No. 15,575.—Henry A. Rains.—*Improvement in Cart-Saddles.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Uniting the tree-bars A and pads of a saddle, by providing said bars with grooves around their edges or with grooved rims, and the lining E of the pads with looped, corded, or perforated borders *p*, which are firmly but removably secured in the grooved edges of the tree-bars by wires, cords, or bands C passing through or around said loops or borders, and held by right hand and left hand screws *a*, or equivalent fastenings, substantially in the manner and for the purposes herein specified.

No. 15,681.—Henry Adams.—*Ladies' Riding-Saddles.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—1st. The arranging of the near side horn *a* with the leaping horn *b*, attached directly to it on the side of the tree or saddle, near the front, and a short distance below the head of the same, substantially as and for the purpose set forth.

2d. Having the leaping horn attached loosely to the near side horn, so as to be capable of being reversed, and thus made to serve as a support or rest for the left leg while riding at a slow gait.

No. 15,392.—John C. Fr. Salomon and George E. Cooper.—*Improvement in Riding-Saddles.*—Patented July 22, 1856.

The nature of this invention consists in providing the upper part of a saddle-tree with a metallic seat, fastened by two stationary swivel-pins *a a;* under the metallic riding seat is placed a spiral spring *b*, seated in a movable sliding chair *c*, to which are fastened two guiding rods *d d*. Under the sliding chair and its rods and on the upper side of each pad is placed a sliding guide *e*. The chair, with the spiral spring, can be moved in the guide rods *d* towards or from the pommel or cantel to suit the weight or convenience of the rider.

Claim.—The movable volute spring-seat chair *c*, with its guiding rods *d d* and the guides *e e*, in which the same is moved on the upper sides of the pads, in combination with the supporting rod *f* attached to the under side of the metallic riding seat, in the manner and for the purpose set forth.

No. 15,744.—Pascal Plant.—*Improvement in Riding-Saddles.*—Patented September 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: Disclaiming entirely the primary principle of applying spiral springs to saddles, and also disclaiming the use of enclosed compressed air-spring saddles, both principles of which have long since been well known and used.

I *claim* the distinguishing features of improvement, the sockets A B and vertical shanks F F, provided with immovable springs *g g*, arranged in the manner and for the purposes specified.

No. 16,032.—Richard Trussell.—*Improvement in Stirrups for Riding-Saddles.*—Patented November 4, 1856.

If, by using this stirrup, the rider wishes to disengage himself from the horse, the foot piece B, on being relieved from the pressure of the foot, will assume the position represented in dotted lines, and by that means the stirrup causes the foot to be disengaged from it.

The inventor says: I do not claim the toe pieces, as I am aware that a toe piece has been used on a foot piece attached rigidly to the bow of the stirrup; but, in combination with the use of the toe piece or its equivalent, I *claim* the attachment of the foot piece B to the bow A of the stirrup by a shaft C, or other connexion of similar character, furnished with a spring *e*, to operate in the manner substantially as set forth.

No. 14,438.—Samuel Blackwell.—*Improved "Dumb Jockey," the "Cross" and Saddle tree being made of Gutta Percha.*—Patented March 18, 1856. England, March 9, 1853.

The object of this invention is to adapt the dumb jockey to the shoulders of horses of different sizes, and, further, to prevent the horse from injury in the case of its rolling or falling on his back during the operation of bitting or breaking.

Claim.—Making the cross *a b* and the saddle tree b^1 of gutta-percha, and thus a new article of manufacture, one possessing advantages as specified.

No. 15,077.—James Ives.—*Improved Mode of attaching Pads to Saddle-trees.*—Patented June 10, 1856.

In order to connect the pad C to the tree A it is only necessary to bring the slot *g*, cut in the bearing e^1, opposite to the thin portion *d* of the journal *a*, and to move it to the position shown in dotted lines, fig. 4, bringing the circular holes *f* f^1 opposite to the journals, when the journals may be made to enter the holes *f* f^1. The pad is now turned down (to the position shown in fig. 1) and thus prevented from getting loose from the tree.

The inventor says: I do not claim a hinged self-adjusting pad, as such a device was patented February 5, 1847, by Pope and Frasier; but I *claim* the peculiar construction of hinge-joint, herein described and shown, for connecting the pad C to the tree A.

No. 14,040.—Joshua Turner, Jr., assignor to Warren Covell.—*Improvement in the Manufacture of Leather Shoe-Bindings.*—Patented January 1, 1856.

The nature of this invention will be understood by reference to the claim and illustration.

Claim.—The improved process above set forth in the manufacture of leather bindings, viz: Dividing a strip of leather into strips of equal width, joining or connecting them at their ends, so as to connect them into one long strip, coloring the same when so formed, and finally spliting it, so as to remove the fleshy surplus portions, and reduce the whole to one equal thickness.

No. 15,176.—Isaac A. Dunham.—*Improvement in Shoemakers' Edge-Planes.*—Patented June 24, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim a moulding stock, formed with a throat, so as to receive a movable and adjustable moulding cutter; nor do I claim so making a cutter that its moulding surface and cutting edge shall be made in one piece of metal.

But I *claim* my improved tool, having part *a* of its moulding edge C stationary and formed with a cutting edge, and the other part *b* of said moulding edge made movable with respect to the first, and so that, while cutting with the tool, the moulding surfaces of both parts may rest in contact with the material which is to be cut, my tool enabling me also to polish the reduced surface while a shaving is being removed.

No. 14,799.—Thomas D. Bailey.—*Improvement in Pegging-Jacks or "Shoemakers' Head-Blocks."*—Patented May 6, 1856.

By means of the arrangement of fastening the turn table A to the block B, a recoil is prevented, when a blow is struck upon the last G, and the spring will yield enough to allow the turn table to be revolved by hand, being stiff enough to prevent its turning by the action of hammering.

Claim.—1st. The method of fastening the turn table A to the block B, by means of the screw C and spring O.

2d. I do not claim the lever D, nor do I claim the use of the wedge L as a means of forcing the lever down, and securing it to its place, as such an arrangement is already known.

But I claim the peculiar construction of the wedge L, having a convenient handle M and pawl Q attached to it, which pawl plays into a ratchet N made in the turn table or bed plate A.

No. 16,280.—Jesse Ladd.—*Improved Machine for Pointing Shoe-Pegs.*—Patented December 23, 1856.

A block of suitable form being placed upon the vibrating bed, composed of fingers A, and pressed down upon the ridges B, it is pushed forward under the feed roller D, which carries it forward to the cutting tool. This knife *z*, driven by pitman W of the driving wheel, cuts as it advances parallel angular grooves in the block, equidistant from each other, depending for that distance upon the ratchet wheel P or stroke of pawl R, and the operation proceeds until the block has been completely gone over. The block is then replaced upon the bed, and again advanced to the feed roller, so that the knife shall cut another series of parallel angular grooves at right angles with the former, and guided straight forward by the ridges B and C.

The inventor says: I do not claim the triangular knife, nor the guiding ridges B B and C C C, nor the feed-roller.

I *claim* the employment of the fluted or toothed feed-roller D, in combination with the vibrating bed, composed of the fingers A A, &c., operating in the manner and for the purpose set forth.

No. 16,013.—Nathaniel Hayward.—*Improved Catch for India-Rubber Shoes.*—Patented November 4, 1856.

The spring *c* with the catch *d* presses when the shoe is put on against the heel of the under-shoe, and serves to retain the over-shoe in its place. The over-shoe can be readily taken off by simply pressing with one foot upon the lip *e*, which will release the catch *d* from the under-shoe.

Claim.—The use of a steel rubber, or other kind of spring catch of any proper shape, in the heel of an India-rubber over-shoe or clog, having a projection or lip extending out horizontally or through the quarter, as specified; whereby the over-shoe is prevented from slipping at the heel, and is susceptible of being disengaged from the under-boot or shoe, without using the hands, as set forth.

No. 15,896.—Samuel W. Pingree.—*Improvement in the Order of Applying Tan-Liquor to Hides.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim. The object of using sumac and alum in this process of tanning is to soften the partly tanned skins or to retain them in a soft state, so that they may be pliable when the tanning process is completed. The alum toughens the hide.

The inventor says: I do not claim the separate use of any of the chemical materials mentioned for the process of tanning, as I am aware that all of them have been before employed; and particularly, I do not claim the neutralization of the alkali by the use of sulphuric acid, preparatory to the introduction of the hides into the tanning liquor.

But I *claim* the use of the catechu and the sumac and alum, with

reference to the application of the bark or strong tanning liquor, as stated, and so as to produce effects as set forth, and in the order as specified, when the hide is tanned with the hair on it.

No. 14,399.—R. Gould.—*Improvement in Tanning.*—Patented March 11, 1856.

The nature of this improvement will be understood from the claim.

The inventor says: I do not claim the use of catechu in the process of tanning, as my invention for its use has long been known. I do not claim to have discovered any new property of catechu, or nitre, or of alum, in relation to their employment in tanning operations; but I do *claim* to have discovered that, in order to insure the proper exercise of the properties of these substances in tanning, they must be used in a certain manner, differing from the mode in which they have hitherto been known to be used. I claim to have discovered that, in order to use these substances effectively for tanning, they must be employed substantially according to the processes set forth in my application; and I claim to have discovered that, when these three substances, or their chemical equivalents, have been employed together, they have and must fail, as they are, to some extent, incompatible when so used. But I claim the use, in the process of the tanning of hides and skins for the making of leather, of the two solutions above described, used and applied each separately, or at different times, and in the order following, viz:

1st. By using a combined solution of catechu (or any other material its equivalent, as containing the tannic properties) and saltpetre, substantially in the mode of application, or any equivalent, as above described.

2d. By using a combined solution of catechu (or any other material its equivalent, as containing the tannic properties) and alum, substantially in the mode of application above described, or any other mode of application equivalent thereto.

No. 14,375.—Abraham Steers.—*Improvement in Tanning Apparatus.*—Patented March 4, 1856.

A^1 A^2 is a three-sided frame. The hide is doubled lengthwise and placed upon the frame A^1, so that the fold of the hide will be at the open side of the frame. Then the frame A^2 is placed on top of frame A^1, and the hide firmly clamped between the two frames by screwing them together, so that the frame will be water-tight on three sides of the hide. The frame is then removed into the position represented in the engraving, so that its two pivots G G will play in grooves in the uprights F F. The frame with the hide can then be changed to any position, and the liquor be admitted through tube H.

Claim.—The apparatus within described, or its equivalent, to charge the skins stretched on a frame with a thin stratum of tan liquor, constructed and operated substantially as described, and for the purposes essentially as specified.

No. 15,303.—Samuel W. Pingree.—*Improvement in Tanning Hides.*—Patented July 8, 1856.

The nature of this invention will be understood by reference to the claim. The inner layer of the skin which is to be removed does not combine with the tannin, and by removing the same the tanning liquor will have free access to those layers of the skin which combine with the same.

Claim.—When the hide is to be tanned with the hair either on or off, as the case may be, removing or skiving off the inner layer thereof, or the same and a part or parts of the middle layer of it, preparatory to immersing such hide in the tanning liquor.

No. 15,157.—Israel P. Williams, assignor to Henry L. Williams.—*Improvement in Pre-tanning Compositions.*—Patented June 17, 1856.

The object of this invention is to swell the hide after the action of the bate so that the tannin can penetrate it, and at the same time, to prevent putrefaction by the action of a bath of carbonate of soda and nitre. The bath of acidulated water is employed to neutralize the alkali near the surface of the hide, in order that the alkali may not act on the tanning liquor when the latter is fresh, and so as to impart to the hide too dark a color, as the tanning liquor becomes acid by exposure to the atmosphere.

The inventor says: I do not claim the employment of either carbonate of soda or nitre in the tanning liquor, nor do I claim the employment of a hydrated solution of nitrate of potash and muriate of ammonia in the treatment of hides preparatory to their being immersed in the tan-vat.

But I *claim* subjecting the hides, after the "liming" and "drenching" of them, and preparatory to their being immersed in the tanning liquor, to the action of a bath of the carbonate of soda and nitre, and one of an acid solution or mixture as specified, the same being for the purpose as set forth.

No. 15,736.—George W. Hatch.—*Improvement in the Preparation of Hides for Tanning.*—Patented September 16, 1856.

This invention consists in exposing the wet hides to the influence of smoke before they are put into the tan-liquor; the process of tanning is shortened to a considerable degree by this method.

The inventor says: I do not claim the use of pyroligneous acid as such, but confine my *claim* to the use of smoke from wood or other equivalent combustibles, in the preparation of hides for rapid tanning, as set forth.

No. 15,844.—Elias A. Eliason.—*Improvement in the Construction of Hide Frames in Tan Vats.*—Patented October 7, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventor says: I am well aware that hides have been immersed in quantities attached to frames, or wheels, or cords, in a horizontal position, and kept out of contact with each other; but in no instance have those several devices been connected to each other in such manner as to form a frame or false vat, by which the whole could be simultaneously immersed in or withdrawn from the liquor vat.

I *claim*, 1st, arranging a series of ranges of horizontal slats in a false vat or frame upon which the hides are placed, one upon every range, whereby the whole may be simultaneously raised out of the liquor vat, (without pumping off the liquor,) substantially as and for the purposes described.

2d. I claim the axial cross-ties D D, when connected with the frame C, in combination with the hooked rods F F and shaft *e*, whereby the frame or false vat may be revolved or reversed, for the purposes described.

No. 15,826.—Stephen F. Summers.—*Improvement in Trunks.*—Patented September 30, 1856.

The principal feature of this improvement consists in the employment of metallic strips D, passing lengthwise along the inside of the trunk at a small distance, respectively, from each side, and firmly riveted to the bottom thereof through the brace linings. The object of these strips is, to afford a firm support for securing the casters G to the trunk, and thus dispense with the usual outside guard-strips on the bottom.

Claim.—The inside metallic strips D, arranged in combination with the casters, substantially in the manner and for the purpose set forth.

No. 16,125.—Samuel W. Phelps.—*Improvement in Travelling Trunks.*—Patented November 25, 1856.

This trunk opens at the side by a pair of side doors *a b*, which are provided with a lock, whose bolt *c* engages in a suitable recess *d* in the horizontal partition *e*. The spaces above and below the partition *e* are subdivided by horizontal partitions *f g*, and three of the four compartments are fitted with drawers *h i j*, the remaining compartment *k* being left open for the stowage of shoes, soiled linen, etc. The square space *p* is intended for the protection of a hat or bonnet. The cover *m*, fitting loosely to drawer *j*, may be fastened down by strap *n* and buckle *o*.

Claim.—The arrangement, substantially as described, of drawers, partitions, and side lids or doors, for the combined purposes of security, orderly arrangement, and accessibility of all the contents in a travelling trunk, as set forth.

No. 14,879.—William J. McCracken.—*Improvement in Wardrobe Trunks.*—Patented May 13, 1856.

When the part *a* of the trunk is raised in a horizontal position, the lid F may be raised, the door *h h* opened, and articles placed within

the box E. The trunk is converted into a wardrobe by removing the hook *f* from the staple *g*, and then withdrawing the box E from the part *a*. The strips *l l* are then raised to a vertical position, the dovetails *m* being fitted in corresponding recesses in the ends of the box E. The strips *l l* project some distance above the box E; but, by shoving down the slide *j* and securing it by the bolts *g*, and turning down the parts *k k* of the doors *h*, the box E will be lengthened, and form a continuation of the part *a*.

Claim.—The construction and arrangement of the supporting strips *l l*, in the portion of the trunk *a* for uniting the sliding portion of the wardrobe E to the part *a* of the trunk.

XVII.—HOUSEHOLD FURNITURE, ETC.

No. 15,603.—Charles P. Carter.—*Apple-Parers.*—Patented August 26, 1856.

The apple being placed upon the holder, the latter is advanced towards the paring-knife D by means of handle P. The paring-knife swivels freely upon an arm E rising from the horizontal rod F, that vibrates freely beneath the staples *a*, and is operated upon by a spring G pressing upon its bent end. As soon as the forward end of the apple has been operated upon by the paring-knife, it strikes against the corer L, which consists of a cylindrical cutter attached to disk H, which latter is also secured to a spiral ring I; and at the same time the slicing-knife *c* enters the fruit, and cuts it from the centre to the outer surface, dividing it into a spiral slice.

Claim.—The disk H with its corer L and slicing-knife *c*, operating in the manner and for the purpose substantially as set forth, viz: the purpose of the said disk being to regulate the motion of the apple, as described, by the pressure of the hand, without the necessity of any other screw; it being understood that I do not claim merely the use of a slicing-knife for slicing the apple into a spiral, as that is not new.

No. 15,625.—Marvin Smith.—*Apple-Parers.*—Patented August 26, 1856.

The apple being fixed upon the fork *c*, it is moved forward in the direction of the knife *m* by pressing upon the knob of spindle *h*, until the knife *m* has passed entirely over the apple, when the knife falls back to the position indicated by dotted lines *p*. The fork *c*, with the gears in mesh, is then moved upon the shaft *a* in the direction of and against the bearing B^1; the pins *g g* and crank F becoming disengaged, the pinion *o* is brought into gear with the wheel *f f*; and the spindle *h*

being turned once around upon its axis, the fork with the apple upon it will also be turned against the slicing-wheel E. The fork *c* having upon it the apple-core is then turned upon shaft *a* in the direction of and in contact with pawl H, whereby the core is removed.

The inventor says: I do not claim the combination in the same machine, as such, of knives of different kinds, and operating in different ways, for the purpose of paring and slicing apples; it having been done many years since.

But I *claim*, 1st, the construction of a machine for paring and slicing apples in such a manner that a vibratory or oscillating motion may be given to the fork carrying the apple, simultaneously with the axial or rotating motion of the same; whereby I am enabled to use a paring-knife that shall be automatic or self-acting in its operation, yet equally adapted to paring apples large or small.

2d. I claim the knife *m* and handle G, hinged and operating in such a manner that the adjustment of the cutting-edge of the knife to the entire surface of the apple shall be coincident with the vibratory or oscillating motion of the fork carrying the apple.

3d. I claim the pawl H, or its equivalent, hinged at such a point with respect to the oscillating centre of the fork *c*, that, as the said fork moved in the direction of the hinge of said pawl, the point of contact between the fork *c* and the pawl H shall recede from the oscillating centre of said fork *c*.

No. 15,683.—John D. Browne.—*Apple-Parers.*—Patented September 9, 1856.

The apple to be pared being placed upon the fork E, the knife *p* is pressed against said apple by means of spring *q*, to which it is attached; motion being imparted to the gearing of the machine, the fork *c* is revolved, and the toothed sector *m* operates the pinion *b* and the guiding-bar E, through which the spring *q* passes, and the knife *p* is thus carried around one-half of the circumference of the apple. When the knife reaches the outer end of the apple, the guiding-loop bar E will be released from segment *m*, and then the teeth *n* on the outer edge of the wheel D will gear into the opposite teeth *o* of the bar E, and consequently return it with an increased speed to its original position.

Claim.—The returning or reversing action, as described and forth.

No. 15,224.—Cook Darling.—*Improvement in Machines for Cutting and Coring Apples.*—Patented July 1, 1856.

The apple being placed on the platform *a* under the knives *h h*, the plates *f f* are moved down by means of handle Q and bar *o*, the curved slots *e e* and *d d* imparting a lateral motion to the plates *f f*, and the portions *h h* will divide the apple in two, while the curved portions J take out the core.

Claim.—The machine for dividing and coring apples at one opera-

tion, the knives having a lateral as well as a vertical motion in their descent, so as to separate the core by a cut wider in the centre than at the ends; the whole being arranged substantially in the manner and for the purposes herein set forth.

No. 14,775.—Ephraim L. Pratt.—*Improvement in Machines for Paring Apples.*—Patented April 29, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Attaching the lower end of the knife-shaft I to the stud projecting from the larger segment L by a flat steel or other spring S, for enabling the said knife-shaft to have a slight vibration through the twisting or torsion of said spring; for the purpose of adapting the edge of the knife to the inequalities of the surface of the apple during the process of paring, and enabling the elasticity of the spring S, produced by the twisting or torsion of the same, to be exerted towards bringing the edge of the knife, when thus moved, back to its proper relation to the surface of the apple.

No. 14,800.—John D. Browne.—*Improvement in Machines for Paring Apples.*—Patented May 6, 1856.

As the wheel J rotates, one of the projections *l* will bear against the upper edge of the frame G, and the frame will consequently be turned, and also the knife *n*, which will pass from the back to the front end of the apple, travelling over one-half of its circumference, and paring the whole apple.

When the knife reaches the outer end of the apple, the projections *l* will reach the slot *m* in the frame, and will pass through it, and the frame and knife will be released from the impelling wheel J, to be thrown back to their original position by the spiral spring H.

The inventor says: Various devices have been used, such as scrolls, spirals, levers, springs, wheels, cords, &c., in connexion with the driving-wheel for carrying the knife over the fruit to be pared, and other devices for detaching the knife. I do not claim any of these.

But I *claim* the projections on the impelling wheel J and frame G, when the wheel J is hung on a centre within the circle of action of the projections, and sufficiently eccentric to the frame G for the escape of one projection over the other, as shown, and for the purpose specified.

No. 15,133.—Horatio Keyes.—*Improvement in Machines for Paring Apples.*—Patented June 17, 1856.

The lip *e* will be moved in or out, as the prominences and cavities of the apple pass it, and the cutter R will be moved in a corresponding inverse manner as the cutter-head works on the pin *d*, and consequently the apple will be pared in a perfect manner.

The inventor says: I do not claim the machine herein described for

operating the cutter, for that has been previously used; but I *claim* attaching the cutter-head Q to the bar M by a pivot *d*, and having a lip or bearing piece *e* on the cutter-head, as herein described, for the purpose specified.

No. 15,148.—JOHN D. SEAGRAVE.—*Improvement in Machines for Paring Apples.*—Patented June 17, 1856.

The crank-wheel K being turned, F rotates and gives, in proper time, the segment-wheel M a half revolution, nearly carrying the knife-holder R over the article to be pared, the spring S allowing almost any size to be placed under the knife, and holding the knife, pressed on to its surface. To pare uneven surfaces, it is necessary for the knife-holder R to turn either way; and for this purpose the rod P is allowed to turn in D, and the spring S is attached to the eye F to return it to position again, making the spring S perform two actions: the one to hold or draw the rod P towards the centre of wheel M, the other to hold or return the knife to position.

Claim.—The attaching the spring S to the rod P, so as to hold or return the knife to nearly right angles to the line of motion of P, to or from the centre of M.

No. 16,104.—CHARLES P. CARTER, assignor to LEONARD HARRINGTON.—*Improvement in Machines for Paring Apples.*—Patented November 18, 1856.

The apple being placed upon the semi-circular knife W on the shaft B, the crank Z is turned, which causes the worm *t* to engage the upper end of standard G of the frame R F G, which brings the knife Q up to the apple to be pared, and said frame, with the paring knife, is moved through the entire length of the apple. When the apple is pared, the latch *g* is thrown back into the dotted position of fig. 3, and shaft B and knife W are raised into the position shown in dotted lines in fig. 1; whereby the standard G is disengaged from the worm *t*, and thrown back into its original position by the action of spring *o*. By then holding the crank Z with one hand, and turning the apple against the sharp edge *r* of knife W, the apple is cored and the operation finished.

Claim.—I *claim* the semi-cylindrical holder, constructed and operating in the manner substantially as described, for the purpose of holding and coring the apples, as set forth.

2d. The peculiar form and arrangement of the spring *o*, for the purpose of throwing back the carriage, and operating with an equable pressure during the whole of the progress of the knife.

No. 16,240.—HORATIO KEYES.—*Improvement in Machines for Paring Apples.*—Patented December 16, 1856.

As the wheel I is rotated, a rotary motion will be communicated to the fork G and also to the wheel K, and the knife-head P will conse-

quently pass around the fork G in a circle, the knife being made to bear against the apple on one side by means of the spring N; and as the knife passes around at the opposite side of the apple, it is kept thrown out from the apple in consequence of the lower end of the arm bearing against the cam O. When the knife-head P is thrown out by cam O, the head is allowed to pass underneath the shaft *b*.

Claim.—Giving the knife a circular movement entirely around the fork G and apple thereon, by means of the wheel K, with the arm M and knife-head P attached, and the cam O, arranged as shown, or in any equivalent way, to effect the purpose desired.

No. 16,080.—Ephraim L. Pratt, assignor to Leonard Harrington.—*Improvement in Machines for Paring Apples, Potatoes, &c.*—Patented November 11, 1856.

The object to be pared being forced upon suitable prongs, as represented at T, the crank G is turned, which causes the screw-shaft F to be moved in tube I by the action of rack R on the screws, and the object to be gradually moved past the knife N; the spiral-spring P keeps the gauge M which bears the cutting-knife N in contact with the object, and as the knife passes over its surface the operation of paring is performed; the depth of the cut being equal to the distance between the edge of the knife and the inclined surface of the gauge.

Claim.—1st. Moving the apple, potato, or other object, in a direct line past the knife, or the knife past the object, during the revolution of said apple, potato, or other object, by means of the screw-shaft and cogged-rack, or other device substantially the same; whereby the operation of paring is performed by the turning of the screw-shaft without any other movement of the knife than that occasioned by the curvature, size, and inequality of the surface or form of the article being pared, to which the said knife is accommodated by the action of the spring, as fully set forth.

2d. The peculiar form of the knife: that is to say, shaping the portion nearest the shaft of the form of a segment of a circle of a given radius, and the remaining portion furthest from the shaft of such curvature as will form a segment of a cycloid of a circle combined with the first portion, and correspond, or nearly so, with the spiral curve of the screw, when the end of the apple, potato, or other object is being pared, in such a manner as to enable its edge to assume at all points of contact with the potato, or other object, a convex curve the reverse of the convex part of said apple, potato, or other object with which it is in contact, and thereby enable its end and every inequality of its surface to be pared by thus accommodating the edge of the knife to these parts, substantially as set forth.

No. 16,067.—Ephraim L. Pratt.—*Improvement in Machines for Slicing Apples.*—Patented November 11, 1856.

The core of the apple being pressed upon the forks M, rotary motion is imparted to shaft C. The studs T on the inner face of the plate P,

moving over the curved edges of the heart-shaped bar N, cause said plate P to be moved on its jointed bars Q, so as to alternately bring the knife-guides U on its ends at every revolution over the curved top part of the upright bar O, and thus cause the knives V to descend and slice the apple parallel to its axis.

Claim.—Attaching the knives to a reciprocating piece P, by means of pins or axes on which they can so rotate, in combination with the straight rod or guide O, for the purpose of causing the knives to descend through the apple in lines parallel to its axis, as set forth.

No. 16,150.—E. Y. Robbins.—*Improvement in the Baby Walker and Jumper.*—Patented December 2, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The arrangement of the upper extension of the broad-based caster-supported frame of the apparatus around and over the head of the child, coming in contact with articles of furniture, as he moves himself over the floor, and forming a support for the jumper (or child-sustaining canvass-covered hook), and also serving the purpose of suspending toys above the head of the child, and within his reach, to amuse him, and at the same time cause him to judiciously exercise his arms and chest, substantially as set forth.

No. 15,127.—R. Gleason, jr.—*Improvement in Silver Plate Cake and Fruit Baskets.*—Patented June 17, 1856.

When the lids or covers are over the body A of the basket, their upper ends rest upon the edge of the plate D, as shown in dotted lines. When the lids are not wanted, they are raised in a vertical position, then turned vertically downward, and then turned upward underneath the body A, and secured by the catches G G.

Claim.—Attaching the two lids or covers E E to the box A of the basket by the swivel-joint hinges F F, the lids or covers corresponding in form to that of the body A, whereby the lids or covers may be placed over the body A, or turned downward and secured by the catches G G underneath the body.

No. 15,900.—Charles Schroder.—*Improvement in Spring Bed-Bottoms.*—Patented October 14, 1856.

The nature of this invention consists in the arrangement of spiral springs D lying parallel to each other, and horizontal under the bedstead bottom. Each row being made of a continuous wire, and the several rows being connected together by wires F passing through the centre of said springs, the whole being fastened to the frame, thereby forming an elastic bottom.

Claim.—The arrangement of springs lying horizontally, and connected together, in the manner and for the purpose specified.

No. 16,310.—Elkan Adler.—*Improvement in Spring Bed-Bottoms.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination of the metal caps *c*, connecting links or straps *d*, and springs *b* and *s*, in the manner and for the purpose set orth.

No. 14,574.—Calvin A. Richardson.—*Instrument for Stirring Straw and Husk Beds.*—Patented April 1, 1856.

The nature of this invention consists in a handle A, with two or more hooks B C.

Claim.—The mode of constructing said instrument, for the purpose of stirring filling in beds.

No. 15,249.—Ansel Moon.—*Bedstead.*—Patented July 1, 1856.

The rails are secured to each other by a flange A of iron, which fits to the rising posts, and by dropping down said post until the centre of the flange strikes the screw B, thereby forming a perfect lock-joint.

Claim.—The application of this "lock-joint" (so called) to the manufacture of bedsteads.

No. 15,609.—Elias Howe, jr.—*Improved Bedstead.*—Patented August 26, 1856.

The nature of this invention will be understood from the claim and engravings.

The inventor says: I am aware that spring beds of various descriptions have heretofore been made, and I do not claim the use of springs for such a purpose; but I *claim* a spring bed constructed of a series of springs which overlie each other, all combined together and arranged in an inclined position upon a bed bottom, substantially as set forth.

Nor 14,660.—William Hinman.—*Improvement in Bedstead Fastenings.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Giving an upward inclination to the upper surfaces of the tenons on the side boards *a* and on the head and foot boards *g*, and a corresponding shape to the mortises in the sections *d d* of the posts that receive said tenons; by which the action of the screw connexions between the upper and lower sections of the posts is enabled to form a close jointed and perfect union between the rails *b c*, the head and foot *g*, and the sectional posts *d f*.

No. 16,093.—Spencer Lewis.—*Improvement in Bedstead Fastenings.*—Patented November 18, 1856.

To fasten the rail to the post P the tenon *t* is inserted at the top of the mortise, as shown in fig. 1, and the pin B passed downward through channel *c* and the perforation in the mortise. Downward pressure on the rail carries the tenon into the position shown in figs. 2 and 3, the inclined pin B drawing the end of the rail close to the face of the post. As the rail slips downward, the guard G, turning on its attachment *a*, adjusts itself to the rail, bringing its upper end in contact with the stud *b* on the rail, and the fastening is completed.

Claim.—The inclined pin passing through the post and tenon, as described, in combination with the segmental guard G and stud *b*, operating substantially as specified.

No. 16,276.—Sandy Harris.—*Improvement in Bedstead Fastening.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination, substantially as described, of the dovetail with the staple or mortised projection E, which I have termed the "wedge-box," and its key acting upon an inclined face, in the manner set forth.

No. 15,076.—William Huntress.—*Improvement in Bedsteads.*—Patented June 10, 1856.

This invention consists in providing a bedstead, as clearly shown in the engraving, with a register windlass foot-rail C, and a lever for the purpose of fastening and straining a bottom of cords, pins, and slats, having a smooth, level surface.

The inventor says: I do not claim the cords, slats, windlass, or any of the parts when used in the manner in which they have before been used. But I *claim* the pins P P when placed in the under side near each end of the slats and interlaced with the cords, as above described.

No. 15,235.—Silas Huddleston.—*Improvement in Bedsteads.*—Patented July 1, 1856.

In order to bring the cord C to the proper tension, the tightener D (consisting of the two rings *a a* connected together by the cross-piece *b*) is turned round by hand, and held in position by inserting the pin *h* in one of the holes *g g* in the end rail A.

Claim.—The arrangement herein described and shown, consisting of the device D *a a b d e e*, end rail A *c c g g g*, and stop pin *h*, for the purpose of tightening and retaining taut the cord *c* which forms the bottom of the bedstead.

No. 15,552.—John H. Belter.—*Bedsteads.*—Patented August 19, 1856.

The material of which this bedstead is made consists of layers of veneers, placed on each other at right angles, and glued together. These are then bent into the desired shape of the intended bedstead, and the latter may be composed of two or more separate pieces, which are fitted together by means of dowels F, fitting into corresponding recesses of the adjoining piece; both parts are independently supported by means of castors E. The bedstead is kept in its proper shape by means of the bottom C, the notches B^1 of which can be placed upon the oblique side of the projections B.

Claim.—A bedstead constructed of thin parts A A, supported independently without posts or joints, when the parts are composed of veneers, and arranged substantially as described and for the purposes set forth.

Also the wedge-shaped projections B B on the inside face of each part of the hollow notches B^1 B^1 on the edge of the internal frame C, when combined substantially as described and for the purposes specified.

No. 15,621.—Jacob J. Smith and Jonathan H. Pugh.—*Bedsteads.*—Patented August 26, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—1st. Supporting the four main posts B B of a bedstead by screwing or otherwise inserting them, so that they shall stand securely, without connexion with any rails upon the base A, being held together at its corners by means of the tenons on the said posts; all substantially in the manner set forth and described.

2d. We also claim adjusting the said platform, or its equivalent, to any required inclination, as described, by means of the left and right screw-shaft G, blocks F F, inclined planes *e e*, disk H, and plates K K, or their equivalents, as described.

No. 15,648.—Charles H. Gould.—*Bedsteads.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

Claim.—The within described spring bed-bottom, constructed essentially of the slats B, pivoted at the lower ends, the bar C, springs D, and band E, operating in the manner substantially as set forth.

No. 14,668.—Marshall Lefferts.—*Improvement in Metallic Bedsteads.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim angle-iron in itself; neither do I

claim ∩-shaped or corrugated metallic bars, as both these forms of metal are well known; but I am not aware that the bottom of a bedstead has ever before been formed of a combination of these metallic bars, together with the tie-rods, as set forth; thereby the bedstead bottom is made in the most convenient and durable form, combining strength and lightness, because the angle-iron receiving the ends of ∩-formed cross-bars makes a neat and durable attachment by simply uniting the flat part of the ∩-forms to the horizontal part of the angle-iron, (these two forms thus being better adapted to each other for this purpose than any other character of corrugated metal,) and the tie-straps connecting the cross-bars at the same time sustain the mattress and prevent the said cross-bars from twisting, as specified.

What I *claim* is the combination of the angle-iron side-rails *a* with the corrugated or ∩-formed cross-bars *b* and straps *c* and *d*, in the manner and for the purposes specified.

No. 15,658.—William H. Kimball and Andrew J. French, assignors to Themselves and Amos K. Noyes.—*Spring Bedstead.*—Patented September 2, 1856.

By turning the crank-nut I on screw *h* of the rod H, the levers B and B^1 are made to turn on their fulcra *e*, the distance between the bars D and E will be shortened, and that between the bars E^1 and D^1 will be increased, and the tension of the springs F will be increased. This arrangement serves to restore mattresses to their proper position, should they sag the course of time.

Claim.—Arranging and combining together and with the frame or bedstead A the springs F F F and their connection-rods G G G in manner essentially as set forth, the rocker-bars D E, the levers B C B^1 C^1, bars D E, straining-screw rod H, and crank-nut I; the whole being made to operate substantially in the manner specified.

No. 15,209.—Alvah Foote, assignor to Himself, Ira Russell, A. B. R. Sprague, and Henry Phelps.—*Improvement in Spring-Bottoms for Bedsteads.*—Patented June 24, 1856.

The spring-bed can readily be restored to its normal position, in the case of sagging, by setting the straining-screws C C, which latter also serve to regulate the springs F.

The inventor says: I am fully aware that a combination consisting of a suspension spring, a thrust spring, and a curved arch spring placed between them, while the two former springs are arranged so that one shall be directly over the other, is not new, and that the same is applied to a bedstead that was patented by Ira Russel on the 16th day of September, 1851. Therefore I do not claim such; but I *claim*—

Combining with the bedstead and its system of bands D D E E and springs F F the extension devices or bars B B and screws C C, whereby advantages, as above stated, are attained.

No. 14,514.—Henry R. Plimpton and James L. Plimpton.—*Improvement in Wardrobe Bedsteads Combined with other Furniture.*—Patented March 25, 1856.

The bedstead, toilet-table, writing-desk, &c., are placed together in secretary form, as seen in figure 1. If we wish to change them to a bedstead, toilet-table, &c., the front of the secretary is pushed back until the springs *i i* catch at the bottom and hold the bedstead and portions of the secretary combined in an upright position. The toilet-table or wash-stand is then to be drawn from beneath the writing leaf and its back turned up. The bedstead being turned down, the side-panels K K are to be unfolded and the cornice J turned over in front, as seen in figure 3. The catches *i i* are then disengaged by pulling the key *r;* the bedstead and portions of the secretary combined are then to be turned down until the cornice J strikes the floor. The cord S that confines the head and foot boards upon the bedding is next to be removed from the knob T, and the head and foot boards turned up to their places. The pillows being placed, and the wash, toilet, and chamber articles being taken from the apartment N and set in their respective places, the whole is ready for use.

The inventors say: We do not confine our invention to the particular form or forms of any one or more of the parts as herein set forth, as many variations may be made therefrom without deviating from the principle or main features of our invention: for instance, the portion J may be used only as a support for the foot of the bedstead, and the cap or cornice to the secretary may be made separate, so as to take off and form a top to the toilet-table when placed thereon. Or, in some instances, the toilet-table may be wholly dispensed with, and some other article substituted in its place.

We do not claim as our invention any particular manner of constructing the base or portions A B C, &c., upon which the bedstead and portions of the secretary combined are supported and made to turn.

Neither do we claim the spiral springs for sustaining the bedding, or the pieces *i i*, or any of the catches or fastenings herein described.

Neither do we claim simply the devices of a bedstead made to turn up or fold up into the semblance of a secretary, wardrobe, or other like articles of furniture, as that may be and has been done in various ways, without interfering with our invention.

But we *claim* constructing a bedstead, with suitable parts attached thereto, in such a manner that when not in use as a bedstead it may be folded up and turned upright, and when in that position, by placing therewith a toilet-table or wash-stand, or any other article of similar appearance, the whole apparently will form a secretary, book-case, wardrobe, cupboard, or any other piece of furniture, as herein set forth.

No. 14,593.—Jason Barton.—*Improvement in Pressure Bells.*—Patented April 8, 1856.

The bell swings on the horizontal pivot *a*, which is secured to the

stand B. The spring *d* acts upon the upper part of the tongue *f*, in order to keep the hammer E, together with the rod *b* and knob *c*, in a raised position.

Claim.—So suspending the hammer by a point near the top of the bell, but out of the centre thereof, that the said hammer shall swing from a point near the edge of the bell into the top part of the interior of the bell, and *vice versa*; thus allowing it a downward velocity and a very long movement, and at the same time allowing it to strike the bell near the edge, and at right angles, or nearly so, to its surface.

No. 15,573.—ADONIJAH RANDEL.—*Improved Bristle-Separator.*—Patented August 19, 1856.

The bristles are placed underneath the board J, the rollers M serving as weights to the board J and to keep its lower edge upon the bristles A vibrating motion is communicated to the board J from the pulley G, and the lower edge of the board acts upon the bristles; and as it works back and forth, the butts of the bristles will be separated from the points, and the butts will be passed foremost through or between the rollers L M at each side of the board J.

Claim.—The vibrating board J and discharging-rollers L L M M, arranged and operating as shown, for the purposes specified.

No. 14,883.—THOMAS H. POWERS.—*Improvement in Brooms and Brushes.*—Patented May 13, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: The mode of securing the broom by means of the flattened cone and T follower I do not claim, such device in itself not being new.

But I *claim* the frame composed of links and rods *e f*, which surrounds the broom and holds it in connexion with the cone.

No. 15,702.—THOMAS MITCHELL.—*Improved Machine for Manufacturing the Wooden Part of Brushes.*—Patented September 9, 1856.

The nature of this invention consists in combining with a common circular saw A a cutter-wheel E, composed of a set of chisels, moving with said saw, for the purpose of cutting curved outlines, said apparatus being particularly adapted for cutting the wooden part of brushes.

Claim.—The combination of a circular saw with a cutting apparatus, formed as described, for the purpose of applying circular saws to the cutting of the curved figures, substantially as set forth.

Also, the combination of the apparatus first claimed with a crown-saw attached to an arbor common to both, forming a tool for the advantageous manufacture of brush-handles, or other analogous work, substantially as set forth.

No. 16,126.—Aurelius M. Purnell.—*Improved Apparatus for Exhausting Air from and Hermetically Sealing Cans and Vessels.*—Patented November 25, 1856.

This invention consists in connecting an exhauster A with a jar K, by means of a pipe B and a compound-stopper D E, provided with a flange F and tube G, the latter fitting into tube C of pipe B. The exhauster A being partially filled with water, the entire apparatus is placed alternately in warm and cold water, by which a vacuum is alternately created in the exhauster, thus drawing the air from jar K.

Claim.—The apparatus, constructed and operated as and for the purposes described.

No. 14,439.—Charles Branwhite.—*Improvement in Hermetically Sealing Preserve Cans.*—Patented March 18, 1856.

That part of the flange of collar *a* which is in contact with the tin is bevelled inward, so that its outer edge only takes bearing. The rim of cap *b* projects outwards and downwards, taking a bearing upon the centre of the rubber gasket C. The lower margin of this rim is narrow, or brought nearly to an edge, to secure considerable indentation in the gasket, insuring thereby a more perfect joint than where the whole surface is covered.

Claim.—Confining the top of the can E between bearing surfaces by means of the collar *a* and screw *b*, as described, thereby dispensing with solder or cement in forming a joint.

I also claim the peculiar form given to the internal and external bearing surfaces of this attachment for closing a can, when formed, combined, and used as set forth.

No. 15,088.—Chas. E. Russell.—*Improvement in Hermetically Sealing Preserve Cans.*—Patented June 10, 1856.

The nature of this invention consists in a common tin can A, with a mouth-piece B containing a groove G, for receiving a ring of wire E, which holds a raised tin cap C, pressing upon a small projecting ledge, by means of an under lining of felt.

Claim.—The combination of the spring-ring E and groove G, or its equivalent, in the manner described, and for the purposes specified.

No. 14,245.—R. W. Lewis.—*Improvement in Sealing Preserve Cans.*—Patented February 12, 1856.

The object of this improvement is to prevent the rubber used for packing from tearing or wrinkling, while the cap is being screwed down upon the can, and also preserve the contents of the can from contact with the rubber, by which they acquire an unpleasant flavor.

D is a thin plate of tin, to which a smaller plate E is fastened by a central rivet, after the rubber packing has been placed between these

plates. This latter plate is made so as to enter and fill the throat F of the can, and protects its contents from the rubber which extends beyond the periphery of this plate, so as to bear upon circular edge G. The ribs H in the mouth of the can enter the notches I in plate D, and prevent it from turning while the cap is being screwed down.

Claim.—1st. The plate E, as a means of protecting the can's contents from the rubber packing.

2d. The combination of the projecting ribs H with the cap A, constructed, combined, and operating substantially in the manner and for the purpose specified.

No. 15,478.—S. R. C. Denison.—*Improvement in Carpet Fastenings.*—Patented August 5, 1856.

The cam C is attached, by means of a screw, to the base-board B of the room, securing the carpet to the floor by means of its rounded edge. If the cams on each side of the room are fastened in parallel positions, and if the cams in two corners are raised from the carpet, the carpet can easily be removed by simply pulling it in the proper direction, when the cams on one side will be loosened from the carpet.

The inventor says: I *claim* my method of fastening carpets by means of the metallic cams attached to the base-board, which cams not only hold the carpet firmly in its place, but afford facilities for its instantaneous removal in case of fire or other emergency, said cams being constructed and operating substantially as described.

It being understood that I do not claim the use of buttons for fastening carpets, they having been before used in other ways, as in the fastening of Wm. Loughborough, patented June 5, 1855, but claim only the manner in which they are applied, as specified.

No. 16,036.—Ephraim S. Pratt, assignor to J. S. C. Thursby.—*Fabric for Underlaying Carpets.*—Patented November 4, 1856.

This invention consists in laying stout paper or paper-board, made cellular by perforating it all over, between the floor and carpet; the dust, which, by sweeping the carpet, will be driven through said carpet, will settle in the cells of said paper, leaving the carpet much cleaner than if placed on the bare floor.

Claim.—The described cellular paper or paper-board, for the purpose of underlaying carpets on floors.

No. 15,611.—Judson Knight.—*Improved Ball-Caster for Trunks and Furniture.*—Patented August 26, 1856.

The nature of this invention will be understood from the claim and engravings.

The inventor says: I do not claim the separate parts of the caster as my invention.

But I *claim* the combination of the points *a* a^1 and the ball *b*, working in an open socket *c*, in the manner and for the purpose substantially as described.

No. 15,946.—Edward Gleason.—*Improvement in Bottle Casters.*—Patented October 21, 1856.

By turning the rod I by means of the handle J, the doors D will be turned in consequence of the wheel H and pinion G, and the bottles F may consequently be turned outwards and be upon the outer side of the body C ready for use, or be turned within the body C when not intended to be used, when they are protected from dust. When the doors D are either opened or closed to their fullest extent, the body C will rotate, as the pinions G will not turn, and the plate B and body C are then connected with the shaft I.

The inventor says: I do not claim any of the devices separately considered, nor yet of itself a caster provided with doors to enclose the bottles, and opened to expose them by the turning of the centre handle or rod of the castor.

But I *claim*, 1st, the arrangement of the bottles F, centrally or thereabouts, on or over the pivots of the niched or semi-cylindrical doors D, when the latter are arranged for operation in relation to the body of the caster by the central rod or handle as described.

2d. So gearing and connecting the revolving body C of the caster with its separately turning doors D, and arranging the same with its stationary base A, that, upon continuing to turn the central rod I after the doors have been opened or closed in the same direction which was required to open and close them, the whole body of the caster is made freely to turn on its base A, with the doors in the condition they were set by said turning of the central rod I or handles, as set forth.

No 15,902.—Philos B. Tyler.—*Improvement in Finishing Caster-Wheels for Furniture.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: It will be obvious to all mechanicians that stamping between dies the two surfaces of a piece of metal is not new, and I lay no claim to such an operation, or to corrugating the disk of a wheel, which is old; but the smoothing of the surface of a caster wheel or roller on the plate or disk connecting the hub and rim, and condensing the metal in the operation instead of removing it, has never before been done to my knowledge. Its advantages are obvious: it prevents spoiling any of the castings by imperfect manipulation; it greatly strengthens the disk *a*, hardening it and making it stiffer; and insures an equal thickness in all its parts, or a proportional thickness, as desired. The disk can be smoothly finished and corrugated as

easily as if it were a plain surface, and the expedition and cheapness with which the operation is performed greatly reduce the labor and cost of the manufacture of the article.

I do not claim the process of stamping or swaging, as they are well known devices, and are used for various purposes, such as making railroad wheels of wrought metal, and other articles.

But I *claim* finishing caster-rollers, and like articles made of cast metal, by stamping them in dies, substantially in the manner and for the purposes described; whereby, in finishing, the disk is hardened, and its thickness determined with exactness, insuring the maximum amount of strength with the smallest weight of metal.

No 15,405.—JAMES FERNALD.—*Improvement in Chairs.*—Patented July 22, 1856.

The back-rest D is attached to the chair by being secured to a spring C by means of a screw E; by loosening this screw, the back-rest D can be turned to assume the position marked in dotted lines, or any other position.

Claim.—Oval back-rest D, or its equivalent, when made to rotate in manner and for the purpose essentially as described.

No. 15,021.—LYSANDER SPOONER.—*Improvement in Elastic Bottoms for Chairs and other Articles.*—Patented June 3, 1856.

The sacking D is spread loosely over the coils B B. The slackness of the sacking permits the body to sink down until the weight is sustained by the elastic bands B.

Claim.—In the construction of an elastic rest or support, the employment of a series of elastic coils B B.

No. 14,507.—BENJAMIN M. LEWY.—*Improvement in Fan Rocking-Chairs.*—Patented March 25, 1856.

The arbor S passes through the plates D D, and carries on each end the fan-bearer B, with the fans F F. T T are two round plates fastened to S, each of them sustaining a click C. The pinion P and ratchet-wheel R are fastened together, and turn loosely on S when turning from the click C. G is the axis of the pendulum O W K. Arm O engages the pinion P above, and arm K below. The two arms O and K of the vibrating pendulum engage alternately the ratchets C, and drive the fans.

Claim.—A pendulum or self-acting driver, so applied to any rocking-chair or cradle, or other rocking article of furniture, as that it will act by its inertia to drive the fans.

No. 14,506.—KONRAD KIEFER.—*Improvement in Fan Rocking-Chairs.*—Patented March 25, 1856.

When the chair is rocked backwards, the plate E, owing to the form of the flange O, comes to the floor without shock, and moves in its slots

e^1 e^1, resuming its former position, as the chair is rocked forward, by means of spring *l*. A rotary reciprocating motion is thus given to the fan-shafts C C and D through the pins *c*, wheels *d*, and pinions *c*.

Claim.—1st. The fans G, when made adjustable, and when arranged and operated substantially as herein set forth, for the purpose specified.

2d. The employment of a fan I beneath the seat, constructed and arranged substantially as described and for the purposes specified.

No. 14,890.—William Thomas.—*Improvement in Chairs for Ships' Cabins.*—Patented May 13, 1856.

By this arrangement, the base A may be moved in any direction, and the chair D will remain stationary; and the chair being attached to the bar C a considerable distance above its centre of gravity, it will not conform to the motions of the vessel.

The inventor says: I do not claim suspending the chair to a base or frame, so that it will remain stationary while the base or frame is moved or rocked, irrespective of the peculiar manner of attaching or suspending the same.

But I *claim* suspending or attaching the chair D to the curved bar C, which is connected to the base A by means of the arms F F G and curved bar E.

No. 15,931.—C. A. Mills.—*Improvement in Head-Rests for Chairs.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The semi-revolvable and vertically adjustable supporting rod C, said adjustment being effected by means of the spring *a*, with its fork *f* working into the notches of said support, or its equivalent.

No. 14,872.—Daniel S. James.—*Improvement in Invalid-Chairs.*—Patented May 13, 1856.

The nature of this invention consists in combining with a chair, loosely jointed at *e* e^1 e^2 e^3, a curved brace *f*, running from the joints of the rockers and front of the chair, and constituting a secondary back-piece, for giving stiffness to the chair when in position for rocking, (fig. 1,) and also acting as a brace when the chair is converted into a couch (fig. 2).

Claim.—The construction of invalid-chairs of a loosely jointed frame, in combination with a brace *f*, operating substantially as and for the purposes specified.

No. 15,673.—C. L. Taillant.—*Invalid-Chairs.*—Patented September 2, 185 .

The back J can be raised or lowered by operating the racks K pivoted to said back at L by means of the adjusting-buttons N and sup-

porting rod P, the back J being kept from falling by means of a stop catching the teeth *k* of the rack K.

Claim.—The combination of the chair and adjustable drop or extension back with the rack K and adjusting or supporting rod P, for the purposes substantially as set forth.

No. 14,877.—Zebulon Lyford.—*Improvement in Portable Chairs.*—Patented May 13, 1856.

The unfolding of the parts A A causes the band F to draw or swing out each of the legs D; while folding it together causes each other part to fold into its position, the catch L holding it together firmly.

Claim.—My self-operating folding portable chair, or its mechanical equivalent, constructed, arranged, and operated essentially in the manner and for the purposes set forth.

No. 16,006.—Martin Eberhard.—*Improvement in Rocking-Chairs.*—Patented November 4, 1856.

This invention relates, first, to an improved adjustable foot-rest G, which can be raised and lowered to any desired position by the foot, and which is combined with the seat of the chair in such a manner that the weight of the occupant will retain it in any given position; secondly, to the mode of keeping the chair in a rocking motion by a slight pressure of the heel against the foot-rest G, and by the arrangement as described in the second claim; and, thirdly, to the mode of giving the chair an inclined position, by turning crank U, which will operate the parts named in the third claim.

The inventor says: I do not confine myself to the exact form of the frame or working parts.

But I *claim*, 1st. The lever I, the link L, and lever K, in combination with the seat F and adjustable foot-rest G, the whole operating substantially in the manner and for the purpose set forth.

2d. The treadle M, its arm N, and link O, in combination with the frame P and foot-rest G, operating substantially as described and for the purpose specified.

3d. The crank-shaft V, the lever S, and link T, in combination with the cross-piece C and frame P, substantially in the manner and for the purpose set forth.

No. 14,262.—William H. Towers.—*Improvement in Clothes Clamps.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—Forming slits D at the upper portion of the clothes clamp, as represented and described, in such a manner as to give an increased degree of elasticity to the upper portion of the jaws C, between which

the clothes are clamped, and enable said jaws to be opened sufficiently to admit the clothes and line between the grooves A in the same, and to detach them therefrom without scraping the clothes with the sides of the lower slit, by pressing the prongs formed by the upper slit together, as herein set forth.

No. 16,065.—Samuel Morrill.—*Improvement in Clothes Dryers.*—Patented November 11, 1856.

When the clothes are to be secured on the reel, the bar E is raised up by hand in nearly a horizontal position, and the arm C is turned on bolt *a*, and the reel D is brought into nearly a vertical position; and while in this position, the reel is prevented from turning in one direction by the pawl H, which catches into the ratchet G. The clothes are then secured to the cords on the reel, and the reel is turned back in a horizontal position.

Claim.—Arranging the ratchet on the side of the reel, in combination with the pawl H and lever C, in such a manner that the pawl and ratchet are brought into play when the reel is tilted, but thrown out of play when in its horizontal position, substantially as described and for the purpose set forth.

No. 14,110.—Ephraim Parker.—*Machine for Making Clothes Pins.*—Patented January 15, 1856.

The pieces of wood being of proper length are placed in spout J, and are taken up one by one between the points *b* and *c* of the revolving mandrel D E. For this purpose the points *c* are attached to springs and made to recede just before they arrive at the pieces of wood preparatory to clamping and taking it up. As the mandrel revolves, the cams *d*, in combination with a spring *e*, cause the cutter *f* to reciprocate upon the guide-rod K, parallel with the revolving pieces of wood and with the axis A of the lathe. The pieces, besides revolving around axis A, revolve also around their own axes, by means of pulleys 3, 4, 5, etc., fast to the points *b*. The pieces are formed into cylinders by the action of the cutter *f*. When arrived near the bottom of the machine, the pieces drop upon spout *g* and between clamps *v w*, (see piece *u*, represented by dotted lines,) which latter, as the wheel *h* revolves, present each piece to the circular saw *i*, which cuts the slot and thus finishes the pin.

Claim.—Attaching to a common lathe a cutter, working parallel with the mandrel, in connexion with a spout, the same motion operating both the cutter and spout.

Also, in connexion with the above, a wheel and saw, the whole being a self-acting machine, taking square pieces of timber from the spout, and converting them into cylinders and clothes pins at a single operation.

Also, the combination as above described, or any other combination, substantially equivalent thereto.

No. 14,466.—George W. Parker.—*Improved Machine for Making Clothes Pins.*—Patented March 18, 1856.

The feed-board is placed so that the holes E E, as the wheel B rotates, come into the right position for receiving the pieces of wood, which are pushed in by the punch H as they are moved forward by the tail-block F. The revolving wheel carries the pieces between the spurs of the lathe K and of the tail-block. The tail-block F moves forward, and the mandrel G forces the pieces against the spur of the lathe. As the tail-block moves, the piece is turned by the stationary cutter P and finished by the moving cutter P^1. The piece is then carried back and is left in the same hole from which it was taken. The pieces are then carried between the hole in the carriage J and the punch I, and thus forced into the carriage J, which carries them forward to be sawed or bored.

Claim.—1st. The use of holes E in a wheel B, or tubes secured to a wheel, and into which the pieces of wood are fed, and are thus retained in and carried forward to the proper position to be acted on by the lathe K, saw O, or bit.

2d. I claim a sliding or vibrating lathe K and tail-block F, whereby the pieces of wood to be turned are carried forward to the action of the cutters or chisels.

3d. I claim the cutters or chisels P P^1, in combination with the lathe and holes.

4th. I claim, in combination with the holes, a saw or bit, and a sliding or vibrating carriage J or holder, or its equivalent, to carry the pieces from the holes to the saw or bit.

No. 15,543.—Robert P. Bradley, assignor to Joel Wisner.—*Machine for Wringing Clothes.*—Patented August 12, 1856.

The canvass F is spread open so that the edges of it will rest upon the stakes M. After a convenient quantity of clothes are put into the canvass, it is disengaged from the stakes M, gathered at both its ends, and fastened between the disks H and cups K and L at its respective ends. The cup L, with its disk, is kept stationary, while the cup K and its disk are turned by means of a crank N, and thus the clothes are wrung. The bearings of the cups and disks are mounted upon elastic supports or springs C, which compensate for the shortening of the cloth in the act of wringing.

Claim.—The construction and arrangement of the springs *c c*, so as to compensate for shortening in the act of wringing and at the same time form posts at the sides for bearings.

No. 14,334.—Jacob M. Webb.—*Improvement in Coffee-Pots.*—Patented February 26, 1856.

This improvement consists in constructing a hollow cover B for a coffee-pot, so that a continual stream of cold water passes through fun-

nel *c b* into it near the bottom, and the same quantity of heated water passes out from the upper part thereof into receiver D, which also serves to protect said cover and top of the coffee-pot from the surrounding heat. Thus all the aroma which would otherwise escape with the steam is preserved.

The inventor says: I do not claim a cover containing cold water for condensing the steam generated in the coffee-pot, nor generally passing a stream of cold water along a condensing surface, as such are well known.

But what I *claim* is, the combination of the funnel receiver C, with its pipe *b* descending nearly to the bottom of the hollow cover B, with said hollow cover, and with a capillary spout or orifice *d* leading from the top thereof, substantially as described; whereby a slow but continual and self-regulating flow of cold water is conducted along the condensing surface in the manner set forth.

No. 14,748.—Charles B. Waite and Joseph W. Sener.—*Improvement in Coffee-Pots.*—Patented April 22, 1856.

The boiler A being filled with water and coffee, the vessel is placed on the fire; the steam arising from the boiler passes through tube *h* into the water in the condenser, (the condenser being filled to the level *i i*,) which absorbs all the aroma of the coffee. The condenser is then filled up with cold water until the siphon *g* is covered, when it draws off the entire contents of the condenser into the boiler.

The inventors say: We do not claim a condensing coffee boiler; but we *claim* the arrangement whereby the steam from the boiler A is discharged into the water in the condenser E, which absorbs the aroma, in combination with the siphon *g*, for returning the contents of the condenser into the boiler.

No. 15,835.—Henry Walsh, assignor to Himself and M. N. Espy.—*Improvement in Machines for Separating Green Corn from the Cob.*—Patented September 30, 1856.

The ear of corn H is held firmly by the operator in one hand, whilst with the other applied to crank D he screws the pointed end of the screw-shaft *b* into the centre of the butt-end of the cob, until the annular edge of the ferrule *b* enters the same to its full depth, as represented in fig. 2; thus encircling and preventing the end of the cob from splitting by the pressure of the entering screw, and together firmly holding the ear of corn, which, by rotating shaft B, has its cob gradually forced between the blocks G and G^1, and the grains of corn are removed therefrom by the cutter F. The operator then presses on the lever E, thus releasing the shaft B, which can now be drawn back for the insertion of another cob.

Claim.—In machines for removing green corn from the cob: 1st, the screw-shaft B and spring-lever E, arranged and operating together as described, when the same are used in combination with the sta-

tionary block G^1 and the self-adjusting spring-block G and its cutter F; the said blocks holding the cob between them as it is rotated, and at the same time gradually and regularly moved forward by the progressive rotary action of the screw, and so that the said cutter F shall also at the same time operate against the lower ends of the grains of corn in succession, and remove them from the cob in a whole or perfect state, or without crushing or otherwise injuring them, substantially as set forth.

2d. The combination of the ferrule b^1 with the pointed screw-end of the shaft B^1, the same being constructed, combined, and operating substantially and for the purpose set forth and described.

No. 14,855.—William B. Coates.—*Machine for Cutting Green Corn from the Cobs.*—Patented May 13, 1856.

The thick end of a cob of corn P being stuck on the prongs *e*, and its point being directed towards the opening between the elastic cutters G and G^1, the spindle F is turned, causing the spring-catch *i* to be released from the notch *h*, allowing the spiral spring M to force the spindle and with it the cob P towards the points of the cutters, and, as the kernels are cut off by the latter, forcing the husk through the circular space intervening between the cutters into the hole in the standard D, from which it may be easily withdrawn after all the corn has been cut off.

Claim.—The spindle F, with any convenient number of prongs *e*, in combination with the yielding cutters G and G^1, the whole being arranged and constructed substantially in the manner and for the purpose herein set forth.

No. 14,259.—Benjamin Taylor.—*Instrument for Grating Green Corn.*—Patented February 12, 1856.

The object of this instrument is to reduce green corn to a pulp, to be used for articles of diet. The spikes *f* upon the flat piece of wood E are to enable the operator to pierce the cob of corn Z, and then to rub it backwards and forwards against the spikes *d* and scraper C, the former of which tear and open the kernels, and the latter remove the pulp, which drops through the hole G.

Claim.—The flat or concave piece of wood or metal A, with its opening scraper C, and one or more rows of spikes *d;* the whole being arranged and constructed substantially in the manner and for the purpose set forth.

No. 14,889.—Francis C. Treadwell, Jr.—*Improvement in Machines for Preparing Dough for Moulding Crackers.*—Patented May 13, 1856.

The dough, which is fed into the grooved rollers B B^2, passes from them in cylindrical strips down through the throat-piece, and is sheared

off, by the rotating blades, into pieces of the proper size for moulding by hand.

Claim.—The use of the cutters D D, in combination with the throat C, for the purpose of making a shear-cut, when used in combination with the grooved rollers B B^2.

No. 14,123.—Lewis White.—*Improvement in Curtain Fixtures.*—Patented January 15, 1856.

The nature of this improvement will be understood from the position of the lever *c* and cord *e*, represented in the engraving by dotted lines.

B is the axis of the curtain roller.

Claim.—The lever pawl *c*, in combination with the ratchet *b* and cord *e*, so constructed and arranged that, by pulling the cord (which operates the roller to wind the curtain) in different directions or different angles, it will vibrate the lever pawl so as to hold or release the ratchet, substantially as described.

No. 15,258.—James Stephens.—*Improvement in Curtain Fixtures.*—Patented July 1, 1856.

When the shade is drawn down, the spring G will be wound up and retained by the pawl H; when it is desired to raise the shade, the inner end of the pawl H, by pulling cord O, is raised free from the ratchet, and the spring G will then rotate the roller C and wind up the shade.

The inventor says: I do not claim simply the application of a coil spring to the shade roller for the purpose of winding up the shade, for they have been applied in various ways. But I *claim* attaching the coil spring to a swinging pendant A, and connecting the same to the arbor B, to which the shade roller C is attached by the pinion E and toothed wheel F, the arbor having a ratchet D upon it, in which ratchet a pawl H, attached to the pendant, catches; the above parts being arranged substantially as shown for the purpose specified.

No. 15,615.—Purches Miles.—*Curtain Fixtures.*—Patented August 26, 1856.

The stationary cord G is wound around the spool I of a movable slide D, said spool being prevented from revolving by the pressure of the springs F against its sides; by pressing on the levers E, the springs F are disengaged from the spool I, and the slide D can be moved up or down on the cord G. The end of the cord H, which coils over spool *c*, being fastened to the slide, the curtain can be raised or lowered by operating the slide D, as described.

Claim.—The levers E E, actuated by the coiled springs F F, in the manner and for the purpose substantially as set forth and described.

No. 15,676.—Ferdinand Wieterich and Konrad Hagen.—*Improvement in Curtain Fixtures.*—Patented September 2, 1856.

One end of the window-shade roller is provided with a square pin, and fitted into the hole of the shaft N of the pinion C. When the curtain is pulled down, the extra weight of power applied to pull the curtain down overcomes the power of the spring *m*, and pulls at the same time the slide E downwards; by which motion the lever G will likewise be moved downwards, so as to press the cam F away from the periphery of the pinion C, thereby allowing said pinion to turn and unwind the window-shade. By this action the pinion C acts upon the spur-wheel B, turning the same, and thereby winds up the scroll-spring D. If the curtain is in any position let loose, the spring *m* will act upon the slide E and lever G, which latter will relieve the cam F so as to be acted upon by spring *n*, when the friction produced by said cam against the periphery of the pinion C will hold the same and the window-shade in the exact position it was left:

The inventors say: We do not claim the application of a scroll-spring, wound up by the running down of the curtain, and then drawing up the same by its recoils, as we are aware the same has been done before.

But we *claim* supporting one end of the shaft N in a movable slide E, connected with the lever G, which is made to act upon the cam F, as described.

No. 15,254.—Socrates M. Ridgaway.—*Improvement in Machines for Making and Kneading Dough.*—Patented July 1, 1856.

This invention consists in the combination of a revolving fluted roller *x* with a kneading-trough, the bottom of which is so shaped as to cause the materials placed within it to slide under the moving roller, by the operation of which the process of mixing and kneading is effected.

Claim.—The combination of the fluted roller with a kneading-trough, shaped and combined so as to operate as herein before substantially described.

No. 16,267.—Ralph Collier, assignor to Alfred H. Reip and Ralph Collier.—*Improvement in Rotary Egg-Beaters.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Vertically revolving stirring-blades C, made of metallic wire, arranged as herein described, and when attached to a central shaft operated in the manner set forth.

No. 14,275.—Sherburne C. Blodgett.—*Improvement in Forks.*—Patented February 19, 1856.

By this fork many articles of food can be more conveniently eaten than with the spoon.

Claim.—The construction of forks with a metallic net, or sheets, between a part of the prongs, as above described.

No. 16,058.—G. W. Hyatt.—*Improvement in Forks for Handling Heated Plates.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: Disclaiming all other forms or modes of constructing forks, I *claim* the clamp or spring F, for the purpose of supporting the tines, and also to allow them to be adjusted to suit articles of different diameters.

No. 15,083.—Joseph Parisette.—*Improvement in Ice-Cream Freezers.*—Patented June 10, 1856.

The drop-catch *c* strikes against and becomes locked with the cross-bar *e*, revolving the cream-holder when the said arm is moved in the direction indicated by the arrows. *d* is a lifting catch, which prevents the revolution of the cream-holder when it is desired to revolve the movable arm E, by which motion the frozen cream is scraped off the inner sides of the cream-holder G, and forced to the bottom of the same by means of the spiral scraper D, thereby causing the unfrozen cream to rise to the top, which, in turn, will be mixed and equally frozen.

Claim.—The spiral scraper D, in combination with the drop-catches *c* and *d*, for the purpose of regulating the movement of the can and scraper, in the relation to each other as herein set forth, when arranged substantially in the manner described.

No. 15,550.—John L. Brabyn.—*Improvement in Furniture Polish.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claim.

Claim.—I claim the combination of muriatic and acetic acid with the usual ingredients of furniture polish, in the proportions and manner substantially as specified, for the purpose of producing a polish capable of resisting the action of hot or cold water.

No. 15,325.—George Blanchard.—*Improvement in Nutmeg-Graters.*—Patented July 15, 1856.

The grater B is made to slide in the hollow handle A of a cork-screw D, by shaking said handle, without dropping out. The box C contains a nutmeg E, pressed to the grater by spring F, as represented in the illustration.

Claim.—The application and arrangement of the self-sliding grater B, in connexion with or inside of the hollow cork-screw handle or tube A; so that when the whole structure is shaken with one hand, the nutmeg is grated by the sliding grater B.

No. 15,799.—Wm. Bennett.—*Improvement in Gridirons.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim either the gridiron or cover; but I *claim* the pins or elevators attached to the bars or seats of the gridiron, as set forth, used in connexion with the ventilating cover, constructed and arranged substantially as described.

No. 15,982.—Joseph C. Moulton.—*Improvement in Suspension Hook and Insect Insulator.*—Patented October 28, 1856.

In using this contrivance, the screw-rod A is inserted i the ceiling, and the article to be insulated is fastened to the hook C. The cup B being filled with water, insects, such as ants, will be prevented from reaching the article fastened to hook C, which is thus protected.

The inventor says: I am aware it is not new to surround a tree or the foot of a bed-post, or a meat safe, with a trough or dish for holding a fluid, and therefore I do not claim such.

My invention combines with the insulating cup a screw and a hook, or the equivalent thereof, for the purpose of attaching one article to another, or of so suspending or isolating it as to protect it from insects, as described.

I *claim* a new or improved article of manufacture, composed of a screw-rod, cup, and a hook, the whole being arranged and applied together substantially as specified.

No. 15,562.—William W. Hopkins.—*Improvement in Knife-Cleaners.*—Patented August 19, 1856.

The knives to be cleaned are placed flatwise on the bolster D, the blades being between the corks *f* and f^1, which are moved by hand back and forth on the ways *b*, the upper board C being pressed down by hand as the corks are moved. A wire *j* passes transversely through the plates or boards *a* to serve as a stop. The bolster D being elastic, blades of different thicknesses may be scoured.

Claim.—The reciprocating scourers *e f f g* and elastic bolster D, arranged as shown and described for the purpose set forth.

No. 14,788.—A. C. Ketchum, assignor to Edward B. Olcott.—*Improvement in Machines for Cleaning Knives.*—Patented April 29, 1856.

The board E is fitted between the projection D and the inner ledge or projection *a*, a suitable quantity of powder being placed on the bed-piece A. The board E is moved back and forth, and strips *e*, yielding as they pass over the blades, clean and polish them.

Claim.—Subjecting the knife-blades B, while secured upon the bed-piece A, to the requisite friction or rubbing, by means of the strips *e* attached to the underside of the board E.

No. 15,266.—Albert L. Lincoln, assignor to Himself and Charles M. Foss.—*Macaroni Server.*—Patented July 1, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—As a new article of manufacture, and as of my invention, the above described "macaroni server," as made with its teeth or prongs *a a a* and *c*, arranged with respect to its blade substantially as specified.

No. 14,901.—Gustavus V. Brecht.—*Improvement in Machines for Cutting Meat.*—Patented May 20, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim to be the original inventor of a meat-cutter, or a machine for cutting meat.

But I *claim* the roller *r*, as constructed of a series of circular plates having teeth or hooks on their peripheries, when said plates are put on a twisted square shaft, thus making rows of teeth of the edges of the several plates, and, by the twist of the shaft, giving them a spiral form.

No. 15,248.—Oren Moses.—*Improved Machine for Mincing Meat.*—Patented July 1, 1856.

The cutting-box B, supplied with meat, is elevated into the position represented in figure 1, and there retained by the catch I on the lever H; a reciprocating motion is then imparted to B by means of crank-shaft K, pinion *b*, and rack-bar *a*. As often as may deemed necessary, the cutting-box must be allowed to descend, and its position be changed by turning it by means of handle *i*, and then be elevated again for the purpose of causing the action of the cutting-disks to be at different angles to their former movements.

Claim.—The combination of the cutting-box A with the cutting cylinder and with the other parts of the machine, in such a manner that the position of said box can be readily lowered, partially revolved, and then elevated again, for the purpose of causing the reciprocating movements of said box to so act upon the disks of the cutting-cylinder as to make them cut in transverse directions within said cutting-box, substantially as set forth.

Also, the combination of the comb L and its shaft *e* with the shaft of the cutting-cylinder, in such a manner as to cause the teeth of said comb to act between the cutting-disks on the rising side of the cutting-cylinder, substantially as set forth.

No. 15,452.—JOHN WRIGHT.—*Improvement in Apparatus for Smoking Meats.*—Patented July 29, 1856.

The nature of this invention consists in providing, outside of the building used for smoking, a furnace A with grate B and fire-bolt C, so formed as to cause all the smoke generated to pass into the house; and in building flues D F G with smoke stoppers and spreaders, for the purpose of causing the smoke to smoke the meat evenly, to prevent dust from falling upon the meat, and to prevent damage by fire.

Claim.—The application to furnaces of smoke-houses of a back plate of iron or other incombustible material forming an air-chamber which will increase the draught of the furnaces and prevent any smoke from being wasted or lost; and also the application of inclined flues made of brick, iron, earthenware, or any other incombustible material, together with the smoke-spreaders, as described, for the purpose of smoking meats, &c., the furnaces being upon the outside of the building.

No. 15,352.—HIRAM THOMPSON and RICHARD Q. TUSON.—*Improvement in Mop-Heads.*

The mop yarns or cloths are confined to the mop-head *c* by forcing inward the binder *f*, and turning the cam-lever *h* into the position shown in figure 2; the outward action of the spring *d* against the toothed surface of the cam will render it impossible to move the binder *f* without throwing outwards the said lever.

Claim.—Firmly securing the binder *f* in any desired position by the joint action of the cam-lever *h* and the spring *d*, when the former is combined with the hinder ring, and the latter is combined with the mop handle.

No. 16,137.—FREDERIC ALLEN.—*Improvement in Mop-Heads.*—Patented December 2, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim a clamp, formed of two bars hinged together at one end of each, and provided at their opposite ends with a screw for forcing one of them towards the other.

I *claim* my spring-clamp mop-head as made of a bar of spring steel, as stated, bent and formed with an eye and a hook at its opposite ends, as explained, and having a link applied thereto, so as to operate therewith as specified.

No. 15,592.—LEVI J. HENRY, assignor to BENJAMIN J. HART.—*Mosquito Canopy.*—Patented August 19, 1856.

The rods 8 and 9 which support the canopy are fitted into corresponding tubes 6 and 7 of the cap *f;* the latter is supported by the sliding-rods 3, 4, and 5, which are formed similar to a telescope tube, so as to be shortened or lengthened at pleasure. The rods 3, 4, and 5,

are supported by a shaft *e*, which is attached to the clamp *b c*. The clamp is fastened to the bedstead either in a horizontal or vertical position, and the canopy frame will in either case stand vertically, as the rod 3 can be attached to the screw 1 as well as to the screw 2.

Claim.—The construction of the clamp *b c* with the rod *e* and screw-studs 1 and 2, by which the canopy frame may always be made to stand vertically, whether the clamp itself stands vertically or horizontally, as specified.

Also, the cap *f* fitted to receive the bars 8 and 9 9, for sustaining the canopy or covering, when combined with the sliding-tubes 3, 4, and 5, for regulating the height of said canopy, and also receiving the bars 8 and 9 9 when packed away for transportation, substantially as specified.

No. 16,226.—William Beach.—*Improvement in Bake-Pans.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: Disclaiming the ordinary lapping of thin metal pan corners, as altogether distinct from my invention—

I *claim* the construction of metallic bake-pans with rounded corners, formed as described, by notching, cutting, lapping, and riveting, substantially as set forth.

No. 15,828.—David B. Tiffany.—*Improvement in Putting Pillows and Bolsters into their Cases.*—Patented September 30, 1856.

In using this instrument the pillow is inserted between the tongs H, leaving the outer end projecting beyond the ends C D; the slip is then drawn over the pillow, and the instrument withdrawn from beneath the slip.

Claim.—The instrument having the peculiar construction, substantially as described, for the purpose of inserting the pillows and bolsters into their cases.

No. 15,128.—Henry W. Goodrich.—*Improvement in Molasses Pitchers.*—Patented June 17, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim applying to the outside of a pitcher or vessel a cup or reservoir to catch the drippings from its nose or spout.

But I *claim* arranging the drip receiver d^1, the pipe thereof *f*, and the discharging end of the pipe, with respect to the nose *b* and neck *e* of a pitcher, in order that when the pitcher is being tipped for the purpose of pouring from its nose, none of its liquid contents may pass into the mouth of the discharge pipe; the drip receiver and its pipe subsequently serving to catch the drippings from the nose, and convey the same back into the pitcher.

No. 15,231.—Franklin D. Hall.—*Improvement in Refrigerating Pitchers.*—Patented July 1, 1856.

This improvement consists in the use and arrangement of the tube or conduit pipe *t t* t^1 attached to the inside of the double-walled pitcher, by means of which the liquid is drawn from the bottom of the vessel through continuous double casings.

The inventor says: I am aware that double walls and casings containing intermediate strata of air have long been used in pitchers and other articles of household economy as a means of intercepting and retaining heat; I am also aware that hinged covers to protect the mouth or spout of vessels from which fluids are to be poured, as pitchers, molasses cups, and such like articles, have long been in use. These contrivances I therefore entirely disclaim.

But I *claim* the arrangement of the tube or conduit pipe, and the spout with which it is connected, in the manner and for the purposes herein before described.

No. 14,974.—William J. Stevenson.—*Improvement in Self-Sealing Preserve Vessels.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim the sealing of vessels by a packing ring and a cap which is held down by atmospheric pressure.

But, in combination with the mouth *a* of the vessel constructed with a shoulder *b* at some distance from its entrance, and the packing ring *c* resting on the said shoulder, I *claim* the cap *e*, made with its bearing part smaller than the exterior of the ring, and with raised guide pieces *d d d*, which keep it in place in the mouth, so as to cause it to get an equal width of bearing all round the ring, but do not prevent the necessary imbedding of the edge of the bearing part of the cap in the packing.

No. 15,132.—Samuel Hickok.—*Improvement in Refrigerators.*—Patented June 17, 1856.

The inventor says: I do not claim an inner and outer box, case, or frame, nor the combination of these; neither do I claim filling the space between the inside frame and outside box or case with any fibrous or pulverized bad conductor of heat; neither do I claim making the inside frame convex or concave. But I *claim* covering the inside box, case, or metallic frame *a a*, with woollen flannel *g g* or other cloth, in such a manner that the water, as it drips from the melting ice E, will drip on to and saturate the cloth, and from the cloth will be conducted out of the case, thereby producing a stratum of cold water held in the cloth over the entire surface of the inner metallic frame, and surrounding the articles to be kept cool.

No. 15,545.—Thaddeus Fairbanks, assignor to John C. Schooley. *Improvement in Refrigerators.*—Patented August 12, 1856.

The air, which is in immediate contact with the ice *h* in the receptacle C, will settle towards the bottom of the ice-holder C, will pass through the passage E, and fall towards the bottom of the inner box A, within which are placed the articles to be kept cool. The cold air, in passing downwards, will displace the warm air, which will rise towards the top of box A, and deposit its moisture upon the ice *h*, instead of upon the articles to be kept cool.

Claim.—So combining an ice receptacle with the interior of a refrigerator as that a continuous circulation of air shall be kept up through the ice in said receptacle, and through the interior of the refrigerator, and so that the circulating air shall deposit its moisture on the ice every time it passes through it, and be dried and cooled, and passed through the interior of the refrigerator, substantially as set forth.

No. 16,320.—Charles Winship.—*Improvement in Refrigerators.*—Patented December 23, 1856.

The external air enters the ice-box through the apertures C, and is cooled therein by the ice; then passes through passages *b* into the provision chamber D; then escapes through passages *c*, where it enters the outer case; and being warmed there by the higher temperature of this outer case, it rises and escapes through passages *d*.

Claim.—The method described of causing the fresh, cold, moist air to perform the combined double function, first, of ventilating and refrigerating the interior of the provision chamber, and then of protecting the exterior of said chamber, as set forth.

No. 15,450.—Benjamin F. Wheelock.—*Improvement in Sad-Iron Heaters.*—Patented July 29, 1856.

C C represent the cover of the flat-iron heater in two halves, supported by the horizontal rods *d*, which rest in the ears *e*. The outer edges of the cover are made heavier than the inner edges, for the purpose of opening the same, and of raising the table *f* upon which the flat-iron rests while heating, and which is suspended from the under side of the cover by means of the chains *g*. In the cover C is a rectangular opening, for the purpose of permitting the handles of the sad-irons to protrude while heating.

The inventor says: I do not claim the particular construction and adaptation of the heater to the use of the ordinary flat or sad-irons.

But I *claim* the use or application of the chains *g g*, in combination with the table *f* and beds *c c*, made to balance on the ears *e e e*, in the manner substantially as described for the purposes specified.

No. 14,219.—JOHN ALLENDER.—*Improvement in Scissors.*—Patented February 12, 1856.

C is a fulcrum pin, provided with an arm D and turning in the hub F, which latter is provided with an arm G. The ends of the screws E and H fit into cavities in the respective blades A and B. By tightening the nuts I I^1, the blades may be made to press more or less upon each other.

Claim.—Making or providing arms to the fulcrum to vibrate with and act upon each blade, some distance from the fulcrum, to hold and keep their cutting edges in contact with each other, substantially as described.

No. 14,672.—B. F. MCCREARY.—*Double-Acting Catch for Reversible Backs of Settees.*—Patented April 15, 1856.

In reversing the back, the bar B comes in contact with the inclined side of one of the catches E E^1 and slides gradually over it, thereby turning the plate C a little. As soon as the bar escapes by this catch, the weighted arm D causes the latter to fall in front of the arm, whereby the back is prevented from returning or moving.

Claim.—The turning catch-plate C E E^1, made to tilt either way by a weighted arm D, and having two catches so applied as to form a catch for the back on one side only of the seat in one of the tilted positions of the catch-plate, and on the other side only of the seat in the other tilted position of the catch plate, substantially in the manner and for the purpose herein set forth.

No. 15,143.—OSCAR F. MORRILL.—*Improvement in Smoothing-Irons.*—Patented June 17, 1856.

By applying a flame to the end of the wick *p p*, the spout *i i* will be heated, and the spirit in the wick of the same thereby converted into gas, which will pass down through the tube *m* and its orifice *n* with considerable force. This gas will be ignited by coming in contact with the flame of the wick *p p*, producing a long jet of flame that forces itself through the aperture *t* in the partition *r r* and extends through the entire length of the iron, impinging directly upon the bottom of the heating chamber *s s*. The unconsumed gases and vapors pass upwards and out through a flue *u u*.

Claim.—Attaching to the iron *a a a* a vessel or receptacle *f f* for containing alcohol or other spirit, constructed with a spout or chamber *i i*, into which the spirit is conducted by a wick *l l* and heated by a flame properly applied thereto; the said spout or chamber having attached to it, and communicating with it, a small tube *m* through an orifice *n*, of which the gas or vapors thus generated is forced in a jet and ignited by coming in contact with the flame employed for generating the gas; by which arrangement a jet of flame is made to impinge upon the hollow chamber of the iron.

No. 15,165.—Leander W. Boynton.—*Improvement in Smoothing-Irons.*—Patented June 24, 1856.

In order to heat the iron, the main or lower part of the same is placed inverted over one of the spaces E E in the plate J, the latter being placed over the fire. The heated air, &c., will pass through the spaces E E against the upper portion of this part of the iron, and out through the holes a^1 *a*, &c., thus heating the iron from the side opposite the face, so that the face will receive the heat from within.

Claim.—Forming the lower part A of the iron with side walls projecting above the upper surface thereof, for the double purpose of securing the upper portion B to the lower portion, and directing the draught in heating the upper surface of the said lower portion; it being understood, however, that I do not claim, in itself, the making the iron in two portions, with the handle attached to the upper portion, as that is not new, but only the mode of construction, as above claimed.

No. 15,723.—John Taggart, assignor to Himself and Vernon Brown.—*Improvement in Furnace Smoothing-Irons.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Arranging the bellows between the handle and furnace or body of the flat-iron as circumstances may require.

I also claim making the bellows tube or conductor H in two separate pieces *m n*, and attaching them respectively to the cover and body of the furnace so as to operate together when the cover is down, and to be separated when the cover is raised, substantially in manner and for the purpose as specified.

No. 14,796.—G. W. Bishup.—*Improvement in Self-Heating Smoothing-Irons.*—Patented May 6, 1856.

The fire is made within the chamber A; and as the bottom *a* is moved back and forth over the cloth, the air is forced down the tubes *b b*, and feeds the fire. The smoke and gas escape through the holes *c* c^1.

Claim.—The tubes or pipes *b b*, placed one at the front and the other at the back of the fire-chamber or box A, and the openings or holes *c* at the sides of said chamber or box.

I further claim the hollow projection B attached to the fire-chamber or box A, and communicating with said chamber or box by an aperture *d*, and having a tube C connected with it, which communicates with the external air at one side of the fire-chamber or box A, substantially as and for the purpose set forth.

No. 15,801.—William D. Cummings.—*Improvement in Self-Heating Smoothing-Irons.*—Patented September 30, 1856.

The nature of this invention consists in providing the rear end of a self-heating smoothing-iron with a trough *g*, provided with a registered

top *i j k*, and which trough serves to receive the ashes. By closing the register and tipping the iron back, the ashes fall into the receiver, which is then withdrawn, emptied, and replaced.

Claim.—The trough *g* extending rearward from the bottom of the fire space, in the described combination, with the ash receiver *h*, open at the side next the said space, and provided with a registered top *i j k*, for the purposes of cleanly separation and removal of the ashes, &c., as explained.

No. 16,254.—Wendell Wright.—*Mode of Securing Springs in Upholstery.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Securing the spring A to its seats B B, by having annular grooves *a* made in the seats, one in each, and having the greater portion of the coils *c* at the ends of springs made or bent in horizontal form and somewhat larger in diameter than the grooves *a*, so that they will have a requisite bearing on the seats, and be retained by their elasticity within the grooves, as described.

No. 15,943.—Charles Baum.—*Improvement in Combined Table and Bedsteads.*—Patented October 21, 1856.

When this apparatus is to be used as a table, the board G rests on the top of the uprights A and A^1 and connecting-bars E, as represented in figure 1. When required to be used as a reclining bed with raised head-rest, the board G is turned down so that its edge shall come in contact with the projections *q* on the uprights A, as shown in fig. 2. To convert the apparatus into an ordinary bedstead, the board G is turned down still further until its edge comes in contact with the projections *r* on the posts H, as represented in fig. 3.

The inventor says: I am aware that combined seats and tables have been heretofore known and used, such as the sofa table of W. L. Bass, patented May 16, 1854; I therefore do not make an exclusive claim to the combining of table and bedstead together, for the use of artisans.

I *claim* the frame-work composed of the upright posts A A^1, longitudinal-bars C C^1, transverse-bars D D^1, upper longitudinal-bars E and E, in combination with the board G, rods H H, and frame K, the whole being arranged and constructed substantially in the manner set forth.

No. 15,675.—Abdelah Watson.—*Self-Waiting Table.*—Patented September 2, 1856.

The waiter D, loaded with dishes to be served up, is placed upon the wires C at one end of the table, and an attendant turns the winch H. When any one of the guests wishes to take anything from the waiter, he slides up the cross-plate *d* in the notch *g*, of which the cord E and

rods *b* operate upon the waiter; thus by sliding up the plate *d* the waiter is arrested and remains stationary as long as the guest desires. As soon as he has helped himself, he slides down the plate *d* to the cord E, and the waiter moves on as before.

Claim.—The waiters D D, wire-racks C C, and driving-cord E, combined, arranged, and operating substantially as set forth.

No. 14,093.—Ed. A. Curley.—*Improvement in Extension Tables.*—Patented January 15, 1856.

When the loose extension boards G G I are folded upon top of one another, they can be depressed (see figure 2) sufficiently to allow the last board, which is attached to the extension legs, to be brought over them, and the whole to be confined and covered by the table-top C.

Claim.—Having the top C of the main or stationary portion A of the table made loose, and arranged upon or suspended by springs D D^2, and to move up and down by guides or ways *c c*, substantially as and for the purpose set forth.

No. 15,407.—C. D. Barnitz.—*Improvement in Portable Folding Tables.*—Patented July 29, 1856.

The folding table A is supported by the movable braces B, which support the table, as represented in figure 1, and brace the legs firmly. By turning said braces, the legs D and E can be turned into a horizontal position, and will fit closely against the under surface of the table, as represented at figure 2.

Claim.—The movable braces and supports B, which, when in a horizontal position, brace firmly the legs in an upright position, and also give support to the lids A; and when turned into a vertical position, permit the legs to close in against the under surface of the table.

No. 15,840.—George W Childs.—*Improvement in Vegetable-Cutters.*—Patented October 7, 1856.

This cutter consists of a revolving disk G, to which a series of plane knives are attached, which cut the vegetables into broad thin slices. The knives *h* are placed across the under side of the knife apertures, in order to further divide the slices; the knives *h* are hinged at one end, so as to yield when the slices are forced through by the action of the feeding apparatus.

Claim.—The vibrating cross-knives *h h*, operating in the manner set forth.

No. 14,297.—Masa Branch Southwick.—*Improvement in Machines for Preparing Vegetables for Preservation.*—Patented February 19, 1856; Patented September 15, 1853, England.

Claim.—The improved mode above described of separating the skins peels of potatoes and other vegetables from the pulp and skins

together against the denticulated or serrated edge or edges of pieces of metal or other material, whether such pieces D be aquiline-shaped or otherwise, provided the skins are caught by the teeth, and are thereby separated and taken from the pulp, whether the teeth be shaped like saw-teeth or otherwise, and whether the working table A be of circular form and revolving, or be made of any other shape, and caused to vibrate and move from side to side to produce the effect of the circular trough or table above described.

No. 16,078.—Jacob Geiss and Jacob Brosius.—*Improvement in Machines for Cutting Vegetables.*—Patented November 11, 1856.

The vegetables to be cut are placed within the hopper D, and pass down between the plate E and cone C. Motion is given to the shaft B, and the vegetables are cut by the cutters *g*, the sliced portions passing within the cone C, and falling out of its larger end, the ribbed plate E preventing the vegetables from receding from the knives. The vegetables may be cut finer or coarser by shifting the position of the cone C upon the shaft, so as to bring the slots *d* nearer to or from the knives *g*.

Claim.—The cone C provided with slots *d d*, and secured upon the shaft B, as shown, in combination with the knives *g* attached to the arms *e e* and disk *f*, arranged as shown and described, for the purpose specified; it being understood that I do not claim the use of a hollow revolving cone armed with knives for slicing vegetables, as that is not new, but only the mode of construction specified for effecting the adjustment for the thickness of the slices.

No. 14,111.—Ira S. Parker.—*Improvement in Wash-Boards.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engraving.

Claim.—Constructing the wash-board of a series of cylindrical beaded bars A, the ends of which are secured to boards B C; the beads *a* of the bars being side by side in horizontal rows, so as to leave spaces *c* between them, substantially as shown and described.

No. 14,638.—Royal Hatch, assignor to Henry C. Hatch.—*Improvement in Wash-Boards.*—Patented April 8, 1856.

The nature of this invention will be understood from the claim and the engravings.

The inventor says: I do not claim the beaded rounds, irrespective of the manner in which they are arranged or fitted together, for they have been previously used; but I *claim* the beaded rounds E, when secured in the frame of the board, viz: by having tenons on the ends of the rounds fitted in the grooved rails B B, and the beads *c* of every alternate round fitted in the cavities or hollows *d* of the intermediate rounds, as herein shown, and for the purpose specified.

No. 14,869.—J. B. Holmes.—*Improved Machinery for Manufacturing Wash-Boards.*—Patented May 13, 1856.

The cams 3 3 in their motion force down the plate 2, and cause the incising cutter 7 to cut and force its edge into the leg or side of the wash-board 21. The cams 3 3 relieve the plate, and the spring 4 draws the plate 2 up. Should the spring 4 not be sufficiently strong to draw the cutter out of the leg, the cam 6 revolves against the upper part of the ring 5, and draws it out. The gauge-pieces 22 22 serve to adjust the ends of the legs, so that the incision will be made the proper distance from the ends of the leg.

Claim.—The arrangement of the cams 3 3 and 6, spring 4, and ring 5, for operating incising knife or cutter 7.

I also claim the arrangement of the guide-piece 12 and gauge-pieces 22 22, for purposes mentioned.

No. 15,353.—H. H. Torrey.—*Washing Machine.*—Patented July 15, 1856.

The clothes to be washed are placed in the tub A, the frame C and disk E being previously removed. The frame C is then placed upon the shaft B, the disk E resting upon the clothes. The disk E is then turned by hand with a rotating reciprocating motion, and the pegs d^1 carry the clothes back and forth through the suds and over the rubbers *b*, which effectually cleans the dirt therefrom.

The inventor says: I do not claim the tub A and disk E, separately or in themselves considered; but I *claim* the rotating reciprocating disk E, placed within the tub A, and upon an arbor or shaft B, when said disk is provided with pins or pegs (*d*) on its under surface, and the bottom of the tub with radial rubbers (*b*).

No. 15,503.—Daniel N. Allard.—*Washing Machine.*—Patented August 12, 1856.

By depressing the lever G, the cylinder H, together with the ratchet-wheel L on shaft *h*, is made to revolve as the pawls *d* on the cylinder H operate on the ratchet L. The shaft *h* transmits a rapid revolving motion by means of gearing to the cylinder F, to whose circumference a number of cords are attached in a spiral form, each cord having fastened to its end a round solid body of wood, which, as the cylinder F revolves rapidly, strikes against the articles to be washed upon the endless apron D. When the lever G is depressed to its lowest point, then the weight N causes the cylinder H to revolve in a reversed direction; and the same revolves now loosely upon shaft *h*, as the pawl *d* does not operate upon the ratchet L in this direction.

Claim.—In combination with an endless-apron D, for conveying the clothes to be washed, the series of rotating pounding balls *b b*, the whole being operated substantially in the manner and for the purpose set forth.

No. 15,580.—JOHN S. SHEPLER.—*Washing Machine.*—Patented August 19, 1856.

The metallic rubbers *a* are formed of sections of any odd number of ribs, and are so arranged that the two ends of the rib are parallel with the revolving rubber; but the ribs are made to form an inclined plane from the first until the third or centre one, thus forming a succession of inclined planes over which the clothes are forced, alternately ascending and descending at every section of the metallic rubber, when the plate B is rotated over the plate A.

Claim.—I do not claim the half-cone rubbers, nor do I claim concave rubbers; but I *claim* the forming of ribs in sections parallel to the rubbers, and gradually forming a double inclined plane out of any odd number of ribs, thus causing a wedge-shaped opening between the ribs of equal opening, when vertical to each other, to admit the clothes, as the machine rotates back and forth, without the abrupt contact caused where the ribs are of equal height, as set forth.

No. 14,391.—EDWIN B. CLEMENT and SILAS G. WILLIE.—*Improvement in Washing Machines.*—Patented March 11, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The saw-teeth-shaped rubbers D D, made and operating substantially as described.

No. 14,818.—JAMES T. KING.—*Improvement in Washing Machines.*—Patented May 6, 1856.

The cylinder being half filled with hot water, clothing, &c., steam is let in through the pipe O, the escape steam-pipe opened, and the machine set in motion.

In about ten minutes time, the steam is shut off again, the escape steam-pipe L is closed, the valves D are opened, and the dirty suds are let out into the tube T, and out of the same through the pipe *p* into the sewer.

The valves or cocks in the pipe K are now opened, warm water let in, and then through the pipe I cold water, until it runs out clear through the valves D. The machine is then stopped, with the door C downwards, and opposite the door C^1, when the clothing can be taken out, both washed and rinsed.

Claim.—The construction of a rotary cylinder A, in connexion with internal and external pipes, arranged in such a manner that, through said pipes, steam can always be let into the lower part of the cylinder and escape at the top, while the cylinder is in motion or stationary; and that by the same arrangement hot water, cold water, or steam can be let into the cylinder at the top, and escape at the bottom, while said cylinder is in motion or stationary.

No. 15,033.—Solon Bishop.—*Improvement in Washing Machines.*—Patented June 3, 1856.

The yoke G resting on the shoulder of spindle *d*, a reciprocating motion is given the disk by the handle H, in which movement the yoke G gives steadiness to it at all heights of the disk.

Claim.—The use of the yoke G, in combination with the spindle B and uprights E E, for giving steadiness to the disk D.

No. 15,034.—John T. Bever.—*Improvement in Washing Machines.*—Patented June 3, 1856.

By raising the stem E, the arm G will be drawn from the spring H by cord *h*; while in depressing it, the spring, in its contraction, draws the arm, and with it the rubber F, towards it, thus producing a partial rotary movement, combined with the reciprocating movement obtained by the lever D.

Claim.—The lever D, stem E, and rubber F, when used in combination with the arm G^1, cord *h*, and spring H, for producing a vertical and partial rotary movement of said rubber F.

No. 15,043.—John McChesney.—*Improvement in Washing Machines.*—Patented June 3, 1856.

The pulley *f* turns freely upon the shaft D, and is held in any desired position by ratchet *i* and pawl *l*, for the purpose of adjusting the rubber B vertically.

As the disk rubber is revolved, the cords *d d* will cause the rubber to move longitudinally along the shaft D, so that the rubber will have a compound vertical and horizontal movement.

The inventor says: I am aware that in the patent granted to Joel Haines for a washing machine, February 5, 1850, the disk is made with a hinged segment, (to admit the clothes beneath the same,) being so arranged as to rise and fall vertically as it is turned horizontally over the clothes, by turning the vertical rock-shaft to the right and left. This feature I do not claim, my invention consisting only in an improvement upon the machine of said Joel Haines.

But I *claim* the adjustable suspension of the rubber disk B by cords *d*, ratchet *i*, and pawl *l*, in combination with the rotary radial, fluted frustums of cones *m*, in the rubbing face of said disk.

No. 15,199.—V. R. Stewart.—*Improvement in Washing Machines.*—Patented June 24, 1856.

The crank of the driving-shaft C being turned, the cylinder B will be rotated, and the board M will be moved up and down, and pressed against the clothes by springs N N, the clothes being subjected to the necessary friction and rubbing between the board M and cylinder B.

Claim.—The combination of the corrugated or fluted cylinder B and reciprocating board M.

No. 15,684.—Israel F. Brown.—*Improvement in Washing Machines.*—Patented September 9, 1856.

As the cylinder B rotates, the clothes C are thrown back and forth longitudinally with the cylinder as they rotate, and are consequently subjected to the necessary friction to cleanse them from dirt.

Claim.—The slotted cylinder B, constructed as shown, and having a diagonal or oblique corrugated board a^1 at each end, the cylinder being partially immersed within the box A, substantially as described.

No. 15,711.—Riley Smith.—*Improvement in Washing Machines.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and illustration.

The inventor says: I would state that I am aware a hand rubbing-board has been used in the same machine with a rubbing-board operated by a lever; this I do not claim. But I *claim* connecting the hand-rubber L and lever-rubber R by a pivoted brace K, which serves the double purpose of a guide in operating the lever-rubber, and a brace for raising up and holding in a convenient position the hand-rubber, the whole being arranged for the purpose and in the manner set forth.

No. 15,895.—Jacob Purkey.—*Improvement in Washing Machines.*—Patented October 14, 1856.

The clothes to be washed are placed in the box A between the rubber C and the rollers J, the clothes being at each side of the rubber, and the box supplied with the requisite quantity of suds. The ends of the bar F are then worked up and down, and a reciprocating motion is communicated to the rubber C, and chains I, and rollers J, and the clothes are subjected to the necessary rubbing to cleanse them thoroughly from dirt.

Claim.—The reciprocating corrugated or fluted board or rubber C, in combination with the rollers J; the rollers being attached to the chains I I, the board, or rubber, and rollers being arranged and operating as shown and described, for the purpose specified.

No. 15,958.—Charles N. Tyler, assignor to Henry Pardin.—*Improvement in Washing Machines.*—Patented October 21, 1856.

The first feature of this invention will be understood by reference to the claim and engraving.

The object of the arrangement referred to in the second claim is adjusting the pressure of the washing disk B upon the clothes, whereby they may be subjected to a greater or less degree of rubbing, and by which the disk can also be so adjusted as to wash as large or small quantity of clothes as may be desired.

Claim.—1st. Suspending the shaft C to the cross-beam E in such manner as to be free to turn on its axis for the purpose of oscillating the disk to wash the clothes, and at the same time be capable of vibrating back and forth as the lever is raised or lowered for the purpose of throwing the disk into or out of the tub, substantially as described.

2d. The sliding disk B, in combination with the slotted shaft C and adjustable spring H, the whole being arranged and operated substantially as and for the purposes described.

No. 15,949.—James M. Kern.—*Improvement in Washing Machines.*—Patented October 21, 1856.

The nature of this invention consists in constructing presser P hollow and slotted in front, and in covering the face thereof with a porous cloth *c;* the cavity *a* being designed as a receptacle for soft soap, to be gradually discharged on the clothes through the slots *b* and cloth *c* by the reciprocation of the presser during the washing operation.

Claim.—I make no claim to the reciprocating presser as such; but I *claim* the hollow slotted-faced presser in combination with the cloth covering thereof, arranged and operating substantially as described.

No. 15,945.—Albert A. Dailey.—*Improvement in Washing Machines.*—Patented October 21, 1856.

The clothes are placed on the top of the cylinder B, and are carried in between the cylinders I and B; the action of the two cylinders forces them between the concaves E D and the cylinder B, and, as the machine continues to operate, they are carried by its action around to the top of the cylinder B and may be removed without stopping the machine.

Claim.—The combination of the fluted cylinder B and concave E with the fluted cylinder I, substantially in the manner and for the purposes set forth.

No. 15,981.—Josiah Mumford and John W. Wilson.—*Improvement in Washing Machines.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventors say: We are aware devices for washing one portion of a garment more than another portion have been used; this we do not claim, independent of our special means of accomplishing this object. But we *claim*, in combination with a rotating tub having radial ribs on its bottom, a stationary rubbing-board, also provided with radial ribs and radial slots between them, through which any particular portion of the soiled clothes may be protruded to be washed without washing the entire piece, which lies on top of said rubbing-board, as set forth.

No. 15,989.—Moses D. Wells.—*Improvement in Washing Machines.*—Patented October 28, 1856.

In washing with this machine, the articles of clothing are placed upon the rack R, as shown at C^1, the upright *c* holding the article while both ends flow off the rack. The wings W having been adjusted with respect to distance from the rack, the operator, by means of connecting-bar *m*, produces any required pressure on the clothes as the rack is reciprocated by power applied to crank K.

Claim.—The reciprocating clothes-rack, guided as described, in combination with the wings, arranged and operating substantially as and for the purposes set forth.

No. 16,068.—Ira Reynolds.—*Improvement in Washing Machines.*—Patented November 11, 1856.

Motion being imparted to the machine by means of shafts *e*, the disks *m* revolve in opposite directions. The disks are secured to the shafts in such relation that, through the loose or reciprocating pulleys *i*, the plungers *b* are alternately drawn backward to their extreme inward position, and when liberated by the sliding catches *s* acting against the brakes *k*, the action of the springs *p* force them to their extreme outward position with sufficient forces to press the water from the clothes.

Claim.—The arrangement and combination in washing machines of the reciprocating pulleys I, springs *p*, and plungers *b*, constructed and operating substantially in the manner set forth.

No. 16,190.—Isaac S. Roland.—*Improvement in Washing Machines.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim the use of loose balls, nor of a reel, in washing machines.

I *claim* the arrangement of the article to be washed around the periphery of a revolving reel, in combination with the application of loose balls, or blocks, both inside and outside thereof, substantially in the manner and for the purpose set forth.

No. 14,498.—John S. Gallaher, Jr.—*Improvement in Water Coolers and Filters.*—Patented March 25, 1856.

The nature of this invention will be understood from the claims and engravings.

The inventor says: I disclaim the originating or inventing of the principle of cooling water by the application solely of a saturated cloth.

But I *claim*, 1st, the application of combined chemical refrigerative agents, salt, charcoal, and gypsum, and a mechanical evaporating or air chamber *e e e*, formed with a convex, inverted, conical, sloping, or

tapering cover or top, and a corresponding bottom part, combined in use with a saturated cloth, and through all of which means the ascending diffuse vapor is condensed, accumulated, and returned into its original volume, purified and cooled at one and the same time, simultaneously, in the manner described.

2d. In combination with the condensing medium *e e e* and chemical refrigerative agents, as described, the purifying or filtering devices *c c c*, *d d d*, *d x d x d x*, *f f f*, J J J, W W, with the capillary agents and porous disks; through all of which chemical action and mechanical devices is produced a compact, individual or unity cooling and filtering apparatus, substantially as set forth and for the purpose specified.

No. 14,162.—Daniel Lloyd.—*Improved Apparatus for Stencilling Window-Shades.*—Patented January 29, 1856.

D is one of a set of stencils prepared as follows: Upon a sheet of paper that portion of the pattern is drawn which is to be of one color, (see *x x x* in the figure,) and portions of it are cut out as shown by full lines 1. Upon each end of the stencil is placed a small piece of tin *e* perforated with a small hole, and fastened to the paper by a piece of paper of greater extent *d* being glued over it. The frame B C containing the shade *a a a a* is placed upon bench A, with one of its sides against the stops *b b;* the stencil D is then placed upon the shade so as to bring the pattern in the centre of the shade, and metal pins are driven through the perforations at *e*, and into the bench. The stencil is then removed from the pins, and another paper of the same size is placed thereon, similarly provided with perforated plates *e*. The first stencil is then placed on the pins *e* and brushed over with color until its openings are thus stenciled upon the second one; they are then both removed, and the blanks left upon the second stencil which are required to finish that portion of the pattern are cut out (see dotted lines in the figure). Then the set of stencils is ready for producing upon the shade the continuous pattern *x* represented by full and dotted lines.

Claim.—1st. Producing patterns on window-shades, in which long or continuous lines form a prominent feature, by means of pairs of stencils of the full size of the design, prepared in the manner herein set forth.

2d. The mode of registering the stencils by use of the movable pins *c*, in combination with the fixed stops *b*, or their equivalent, for the purpose of readily adapting the stencils to shades of various widths, as herein specified.

No. 14,217.—Charles H. Bergmann.—*Improvement in Writing Desks.* Patented February 5, 1856.

The desk B is provided with a triangular box N, which fits into the box M of the table, and is pivoted to it at O O. By this means the desk can be elevated or set at various inclinations, and the box M still be kept closed on all sides, so as to exclude dust, etc.

Claim.—Constructing the upper box of a writing-desk with adjustable or expanding sides, in the manner substantially as specified.

XVIII.—ARTS POLITE, FINE, ETC.

No. 15,511.—Anthony Faas.—*Improvement in Accordeons.*—Patented August 12, 1856.

The air enters the instrument to act upon the reeds thereof through perforations in the board *d;* immediately beneath the board *d* a thin sliding board *e* is placed, whose apertures exactly correspond with those in the board *d;* by means of the handle *f* the operator is enabled to slide the board *e* into any position that he may desire, for the purpose of varying the strength of tones by regulating the quantity of air admitted to the reeds.

The second improvement consists in the employment of double keys *b c* to shut the apertures of the base reeds, the smaller keys *c* covering holes through the larger keys *b*, by which arrangement an entire octave of base notes is produced.

Claim.—The sliding and perforated board *e*, when the said board is combined with the perforated board *d* in such a manner as to produce the effects substantially as set forth.

I also claim the double keys *b c*, constructed and operating in the manner and for the purpose specified.

No. 15,401.—Charles Moritz Zimmermann.—*Improvement in the Valves of Accordeons.*—Patented July 22, 1856.

When the works of the instrument are in the position shown in figure 1, the player, by passing down the ends of the keys, causes the roller *p* of the pieces P to raise the valves of the openings of the compartments S, producing two sets of notes with five keys, as is the case in common accordeons. If it is required, however, to produce, by actuating the same set of keys, a set of ten notes, different from the former, then the stop 3 is pressed down, depressing the lever 2 and partially turning the spindle X, and causing the levers Y to pull the cylindrical bar L with the pieces P to the position shown in figure 2, when the roller *p* acts upon the valves of the compartments R, enabling the player to produce a set of ten notes one octave higher than those which were previously given out. Should the player desire to produce a double set of notes at the same time by actuating the same keys as before, then the stop *s* is depressed, catching on the projection of lever 2 by means of lever 4, and causing the levers Y to draw the bar L and piece P to the position shown in figure 3, so that the rollers *n* may act on the arms *q* of both valves which cover the openings in both sets of compartments R S.

Claim.—The arrangement of the valves of accordeons in connexion with sliding rollers, acted upon by the keys and regulated by stops, substantially in the manner set forth; for the purpose of producing from the actuating of one key a variety of different tones by the simple pressure of the stops.

No. 14,069.—Christopher D. Scropyan.—*Method of Preventing Bank-Notes, &c., from being Counterfeited.*—Patented January 8, 1856.

The nature of this invention consists in using oil-colored paper for bank notes, &c., and printing them with indigo ink more fugitive than the color of the paper itself.

Claim.—The application of oil-colored paper, together with a fugitive ink, to the manufacture of bank-notes and drafts, which will prevent the counterfeiting of the said bank-notes and drafts by photographic process, by transferring on lithographic stone, or by anastatic printing, as herein described; using for that purpose the aforesaid combined action of the oil-colored paper and the fugitive ink—i. e., the combination of the oil-colored paper and the fugitive ink—which produces the desired result, and not the oil-colored paper alone without the fugitive ink, nor the fugitive ink without the oil-colored paper, but the protecting power resulting out of the combination of the oil-colored paper and the fugitive ink, or any other substantially the same, and which will produce the intended effect.

No. 15,486.—Peter Hannay.—*Improved Blanks for Bank-Notes, Bills, &c.*—Patented August 5, 1856.

The nature of this invention consists in first producing a photographic picture on chemically prepared paper, and then printing upon this paper, over the picture, by copper-plate or otherwise, the form of the note.

Claim.—The combination of the arts of photography and printing or writing, or both, in the manner substantially as and for the purposes set forth.

No. 16,207.—R. L. Hawes.—*Machine for Paging Books, &c.*—Patented December 9, 1856.

By depressing the treadle F, the type-wheel R attached to lever E of the fulcrum *b* is forced downward upon the platen, and the impression is made by one of the types D. As the type-wheel is forced down, the pin *m* on arm I strikes against pawl H; by this arrangement, the pawl L causes the type-wheel to revolve. The inking of the types is done by ribbon S passing around the rollers T and U. The ribbon S is fed to the types in order to bring a fresh surface to each type by the feed motion of pawl *d*, which is operated by lever *n* striking at each upward motion of levers E and W against rod Z.

Claim.—The general construction and arrangement of the machine, that is to say, pivoting the lever E, which carries the numbering wheels, to the frame-work, and operating the wheels by means of the dog P, the arm *h*, and pin *m*, in the manner substantially as set forth.

2d. In combination with the method described of giving the impression, by means of the revolving ribbon S, I claim giving to each type an independent bed, or platen, and supporting the platens *i* upon springs, in the manner and for the purpose set forth.

No. 15,282.—John E. Coffin.—*Improved Machine for Rounding and Backing Books.*—Patented July 8, 1856.

The books U are placed on the feed-board B, the backs being uppermost. The follower P being down, the innermost book is pressed against it, and the follower P is then raised by the cam X, and forced upward between the two jaws C D, the back of the book being forced into the groove *h*, (fig. 2,) and made to correspond with its form. The cam J then actuates the toggle E, and the sliding-jaw D is pressed towards the jaw C, the book being clamped firmly between the two jaws. The cam N then actuates the levers S and R, and the bed Q is moved along on the ways *f f*, and the hammers V are operated by the cams *j j* on the shaft K, said hammers acting upon the back of the book, perfecting the work.

Claim.—The follower P, clamp formed by the stationary-jaw C, and sliding-jaw D, and sliding-bed Q, with hammers V V attached.

No. 15,212.—John H. Phillips, assignor to Leigh R. Holmead.—*Shield to Protect Breastpins.*—Patented June 24, 1856.

The lips *a a* are perforated for the admission of the pin; the lips being inserted through their respective slits in the linen.

Claim.—The employment of a shield or plate with one or more lips or lugs, for the purposes above specified.

No. 14,202.—Samuel Peck.—*Improved Fastening for the Hinges of Daguerreotype Cases.*—Patented February 5, 1856.

This improvement refers to daguerreotype cases manufactured of plastic materials. The metal straps *c c* are set into the die D behind the hinge blanks *b*, and then the plastic material is spread over it. When hardened and removed from the die, it contains the straps, which serve to strengthen the brittle substance of the case, and to form a strong support for the hinge.

Claim.—The combination of metal straps or supports with the material of the case when the same is plastic, so as to strengthen the case and form a secure fastening for the hinges, substantially as herein set forth.

No. 14,122.—Joseph H. Tompkins.—*Improved Box for Coating Daguerreotype Plates.*—Patented January 15, 1856.

The nature of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim the box containing the jar, as that has long been in use.

But I *claim* the construction and use, in combination with the common coating-box, of the jar J J, with the porous diaphragm D and the orifice C, in connexion with the lute E and flask F, together with

the compress K K L and its application, for the purpose of impregnating the lime or any other substance for retaining chemical vapors in the coating-box with the vapor of bromine, and for the further purpose of continuously furnishing the chambers of the coating-box with a more regular, uniform, and consistent supply of the vapor of bromine, or any other sensitizing chemical, substantially in the manner herein set forth.

No. 16,141.—William Filmer and Edward Bookhout.—*Mode of Backing Electrotype Plates.*—Patented December 2, 1856.

The plate C is placed within the box B, and is firmly pressed down and secured upon the strips *d e* by the screws *g;* and the electrotype shell E, which does not come in contact with plate C, is retained in proper position by the springs *h*, upon which the plate C bears. The melted metal of which the backs are formed is then poured into the space between plate C and bottom *b* of the hopper, the metal running to the lower end of the hopper, and closing around the sides and over the back of the shell.

Claim.—1st. The box or hopper B placed in an inclined position, and the plate C placed within the box or hopper, the bottom *b* of the box or hopper being provided with legs *d d e*, and arranged as shown.

2d. The spiral springs W interposed between the shell E and plate C, as described.

No. 15,185.—Robert T. Knight.—*Improved Envelope.*—Patented June 24, 1856.

The nature of this invention consists in making the ends of the envelope *a a* long enough to lap over each other, so that the clasp may pass through the four sides of the envelope at one time, as at C.

Claim.—The lapping of the ends of envelopes when they are to be secured by metallic eyelets.

No. 15,475.—William B. Coates.—*Envelope.*—Patented August 5, 1856.

This invention consists in manufacturing envelopes with a second or extra turn-down *e*, having adhesive material *h* above and below, in addition to the ordinary turn-down *d*, with its adhesive material. The turn-down *e* is folded within the envelope, and fastened to the blank sheet of the letter, for the purpose of preventing the letter from being abstracted.

The inventor says: Although, as an extra secure means of fastening envelopes, I have shown the same as furnished with double wafers attached together by means of strings, I do not desire to confine myself to their use, as the adhesive materials, independent of the connected wafers, afford an efficient security.

But I *claim* the construction of envelopes with an extra turn-down *e*, said turn-down being furnished with adhesive substance, and being arranged substantially in the manner and for the purpose set forth.

No. 14,614.—Robert T. Knight.—*Improvement in the Construction of Envelopes.*—Patented April 8, 1856.

The nature of this invention will be understood from the claims and the engraving.

Claim.—The lapping and interlacing of the ends A A and the full width, the back being the full width and length, turning over the enclosed letter, so that when the clasps are in, it is impossible to open it without detection.

Also, the application of the metal clasps to the envelope or letter, or both together, making it one and the same parcel; for the better security of the contents, and also to fix the date of mailing the enclosed letter, which is highly important in many legal and public documents.

No. 14,643.—William H. Low.—*Machine for Making Envelopes.*—Patented April 8, 1856.

Motion is given to the shafts E e e^1, and the pin c^1 is carried into the notch in the end of the rod *c*, which forces the knife over the blocks *j j j j*, shearing out the blank from the intervening web of paper; after which the sliding-head C is carried back by springs p p^1. As the blank is cut out, it is gummed on the edge of one of its flaps by means of a gummer placed inside of the knife. The motion of the head C also moves forward the upper gummer k^2 by means of the levers K k k^1 k^1, thereby applying the gum to the paper intended for the sealing flap far enough in advance of its being cut to admit of its being dried by means of a current of heated air forced upon it by the air-pump M, receiver L, &c.

The blank is then forced against the face of the perforated follower D by the creasing-block V, and held there by the pressure of the atmosphere, while the blank is drawn back through the hole in the plate B by means of the grooved cam *d* and the crank d^1, whereby the flaps receive a preliminary fold; the follower is drawn back until it passes into the opening of the folding-plate U, where it remains at rest during about a quarter revolution of the crank. The wiper I strikes now the end of the lever *i*, thereby moving the sliding-bar T, and causing the fingers of the sliders r r^1 to fold down the end flaps; when the sliding-bar has made one half its movement, the slot upon its side strikes the pin of the lever t^1, moving forward the slide r^2 and its finger, making the gummed flaps adhere to the two end ones. Finally, the slide r^3 is moved forward, completing the folding of the flaps. The projections X fold down the fingers as the slide works up in contact with the sides of the head of the follower D.

The inventor says: I do not confine myself to the peculiar manner herein described of giving motion to the sliding-bar T, as it may be

effected with equal facility by other mechanical devices; nor do I confine myself to placing the adjustable blocks *j j j j* inside of the knife, as they may be made equally effective on the outside of it by making the cutting-edge on the outside of the knife.

I am aware that atmospheric pressure has been previously employed in envelope machinery, simply for the purpose of feeding the blanks to the folding apparatus. I therefore do not claim its use for that purpose.

But I *claim*, 1st. The cutting out of the blank by a shearing cut, for the purpose of making a smooth cut.

2d. The position of the knife, to economize the waste of paper.

3d. Drawing the blank through the hole in the face-plate B, thereby giving to the flaps a preliminary fold.

4th. Holding the blank by means of atmospheric pressure while the folders are operating.

5th. The adjustable blocks *j j j j*.

6th. Drying the gum for the sealing-flap by means of a current of heated air.

7th. Feeding the paper to the knife by means of the feeding rollers O O.

8th. The cam movement, in combination with the hollow slide D, and for the purposes set forth.

9th. The mode of folding the finger R, substantially as described and for the purposes set forth.

No. 14,625.—William W. Cotton.—*Machine for Making Envelopes.*—Patented April 8, 1856.

Motion being imparted to the driving-shaft B, it is transmitted by connecting-rod E to rock-shaft G. The blank is placed upon the bed Q, and the feeding plates T and T^1 attached to slide S receive a reciprocating motion by vibrating lever U and connexion V. The ears *a* of feeding plate T carry the blank over the grades *b* and rods *d* up to the stops *c*, whence, by the second motion of said plates, the feeding plate T^1 carries the blank over the aperture O, where it is supported by rods *d*; at this moment the blades *o*, which have been supplied with paste by rollers *n*, which revolve in the paste-box Y, are caused to drop down to the edges of the front flap of the blank, and to supply the same with paste; this movement is caused by the arrangement of cam S on shaft B, roller *t*, rod *u*, counteracting spring and lever *v*, shaft *n*, lever *x*, and cord *y*. The follower N now descends, pressing the centre part of the blank through the aperture O, down to block P, where the flaps are folded down by means of the folding plates 1 2 3 4, which are operated in succession by means of levers D^1, connexions E^1, and sliding cam plates C^1, (figure 5.) The pins H^1 and J^1 of levers F^1 and G^1 slide in the grooves a^2 and a^1 of cam plates C^1, and said levers are operated by the curvature of these slots, and the folding plates being attached to said levers by wires d^1 are thus turned on their hinges. The envelope being finished, the levers U and 14 are now thrown into

the position marked in dotted lines in figure 3; the block P is suddenly jerked into a similar inclined position; the finished envelope is thrown on the slide 17, and discharged from the machine.

Claim.—1st. Operating the feeding, gumming, partial and complete folding, pasting, and delivering devices from two shafts, so united that the rotary motion of one shall give a rocking motion to the other.

I also claim the feeding up of the blanks by the two feeding-plates, each one carrying it up a portion of the distance, and delivering it against the stops or guides, from whence it is carried through the machine and completed.

I also claim the combined operation of the paste-box and pasters, the former operated from the rock-shaft, and the latter from the revolving one through the intervention of devices.

I also claim, in combination with the block P, the folders 1 2 3 4; the hinged joints of which are covered, and the swell of the hinges facing each other.

I also claim, in combination with the folders 1 2 3 4, the sliding cam plates C^1, with their several connexions, for operating said folders.

No. 15,532.—JEROME B. SHAW.—*Method of Lettering and Ornamenting Glass.*—Patented August 12, 1856.—Antedated April 24, 1856.

Patterns of tin foil, whose outlines correspond to those of the design, are fastened to the glass coated with the white of eggs; the whole is then painted in the desired color, and when this is dried, the patterns are removed, leaving the design clear and the ground colored. The whole surface is then varnished and covered with crumpled or corrugated tin foil, to give to the design the appearance of pearl.

The inventor says: I have been informed that, in the invention of each of the parts of the foregoing process, I have been anticipated by others, except in the use of metallic foil patterns of the shape of the design, cemented to the glass while the ground is being painted, and that paper patterns have been used to paste upon cloth while painting the ground of transparent designs thereon. I therefore make no claim to any of these things in the invention of which I may have been anticipated.

But I *claim*, in the described process of ornamenting glass, the employment of patterns of metallic foil, and cementing the same to and removing them from the glass, as set forth, whereby I am enabled to produce ornamental designs on glass at a greatly reduced cost.

No. 14,378.—WILLIAM B. TILTON.—*Improvement in Guitars.*—Patented March 4, 1856.

This invention consists in reducing the bridge *a* down to a minimum size, simply for the purpose of pressure, and then connecting it, by means of a plate *b* that does not touch the sound-board, with the rim at the end *c*.

The inventor says: I am aware that tail-pieces have been old and

well known appliances on string instruments, and I do not lay claim to such a device.

But I *claim* the combination of the bridge and rim of a guitar, or other stringed instrument, by a tail-piece being firmly attached to both, substantially in the manner and for the purposes set forth, by which much of the strain is taken from the bridge-tree, and its size greatly reduced, as above specified, by which the tone of the instrument is improved.

No. 15,451.—R. Gleason, Jr.—*Improved Inkstand.*—Patented March 18, 1856.

D is a hollow image of India-rubber attached to the inkstand by an air-tight joint over an opening C in its top. If the image be subjected to pressure, the air will force the ink into the cap B. *f* is a metal cap secured to the image D and to the top of the inkstand; *i* is a hole in the centre of this cap, over which is secured the block of India-rubber, *g*; this block has a hole *h*, the portion *l* being perforated with a narrow slit *m*, which closes of itself air-tight, but which may be opened by pressure at the points *y y*.

Claim.—The use of the hollow elastic body, operating in the manner set forth, in combination with the peculiar valve employed for the purpose of retaining the ink within the cup, as set forth.

No. 15,527.—L. R. Satterlee.—*Mode of Attaching Inkstands to Desks.*—Patented August 12, 1856.

The base plate B is firmly attached to the desk by means of the screws S S; the glass ink-holder D stands in the base plate, and is secured from dust and injury by the cup C, which can be screwed on to the base plate.

Claim.—Attaching inkstands to desks or tables by means of the base plate B, cup C, and screws S S, substantially as described.

No. 15,969.—John B. Coppinger.—*Method of Fastening Jewelry.*—Patented October 28, 1856.

As represented in the engraving, the two levers A and B, which are hinged together at *a*, are provided with hooked pins *p* and p^1, the lever A being fastened to the stuff by entering the pin *p;* then, by closing the clasp B, the hooked pin p^1 enters the cloth in such a manner that the two pins *p* and p^1 penetrate the cloth in opposite directions, by which the article is perfectly secured to the cloth.

Claim.—The method of fastening jewelry, &c., substantially as set forth

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No. 14,306.—Richard Cross.—*Combined Knife and Pencil Case.*—Patented February 26, 1856.

The spring of the blade is arranged within slot *u* in the shank of the knife, for the purpose of protecting the spring on its opposite sides from

being impeded in its operation by dust or dirt, which may readily be scraped from the socket of the knife-blade by the knife-shank during its movements. The catch *r* is attached to said spring, and slides in the slot *n*.

The inventor says: I do not claim a handle formed with the chambers or recesses for receiving several instruments, which respectively slide into and out of said recesses or chambers; but I do *claim* my improved mode of constructing such a handle, viz: of two separate tubes so formed and applied, that when one is extended through the other it shall not only serve to support it on two of its opposite sides so as to prevent them from being crushed inwards, but form, with the remainder of the enclosing tube, and between it and the latter, one or more chambers for the reception of instruments, as specified.

I also claim arranging the spring of the knife-blade in a slot made through the shank of the blade, as described, the same being in manner and for the purpose as set forth.

No. 15,283.—Edwin Crawley.—*Tool for Index Lettering.*—Patented July 8, 1856.

The types *j* are secured between two plates *f* and *m* (figs. 2 and 4); the plate *f* is provided at one side with a spiral flange *g*, to which flange the type stem *k* (fig. 3) is attached by means of its notches *l*. The plate *m* is provided at one side with radial grooves to receive the type stems *k;* the hub *h* of plate *f*, passing through the aperture 3 of plate *m*, can be secured to the latter by means of a screw and nut. The inking rollers *x* receive the ink by means of an inking belt running over roller *z*. The entire inking apparatus is made adjustable by means of the set-screw *q* passing through the standard *o*.

Claim.—1st. The arrangement of a circular revolving head, having around its periphery a series of types adjustable radially so as to print an index of greater or less "display" by a single rapid continuous movement, using for such purpose the described pair of disks, of which one has radial grooves, holding a set of types, notched transversely to receive the spiral flange on the other disk, in combination with the securing and tightening nuts upon the arbor and pivot, as described, or devices substantially equivalent.

2d. I claim in this connexion the inking apparatus, having two or more inking rollers, and the described distributing mechanism in a vibrating head, attached and supported to a sliding bar.

No. 15,019.—Josiah A. Rollins.—*Improvement in Melodeons.*—Patented June 3, 1856.

The object of this invention is so to arrange within the instrument four sets of reeds, and to combine two sets of valves, to be played by one set of keys, as to keep all the reeds on one tube-board, and to make the construction simpler than when the reeds are arranged in two banks, and to avoid making the depth or width of the case of the four-

reed instrument any greater than that of an instrument of the common kind having only one set of valves.

Claim.—1st. The extension of the wind-receiver B towards the back and front of the case, by forming cavities *a a* between the frame C and the tube-board D, thereby obtaining room under the tube-board for the operation of two sets of valves E and E^1, one behind the other, to operate on four sets of reeds without increasing the usual size of the case.

2d. The arrangement of two sets of valves E and E^1 to bring their movable ends together, and the fitting of the two ends together, so that, by the depression of the valves of one set to open them, the corresponding valves of the other set are depressed and opened, thereby effecting the opening of the two sets of valves by a single set of push-down pins, and keys of ordinary construction.

3d. Supporting the front set of valves at their hinges by a strip K of wood or other material.

No. 15,014.—William N. Manning.—*Improvement in Melodeons.* Patented June 3, 1856.

The tone and action are improved by the reeds H and G being placed in the reed-box S, which answers for a sounding-box. The valves M being on the outside of the wind-chest, not only prevents them from being forced open by the wind, but closes them tighter and makes the action quicker.

Claim.—The reed-box S, (fig. 1,) with the perpendicular valves M.

No. 15,218.—Jeremiah Carhart.—*Improvement in Melodeons.*—Patented July 1, 1856.

When the coupler *f* is depressed in playing, it depresses the corresponding lever G, thereby opening the rear valve B^1 corresponding with its own valve B, thus allowing both sets of valves to be operated by the set of keys E; but notches *g* are made in the levers G for the couplers to fall into as the keys E are depressed, when it is desired to use the two sets of keys independently. The couplers are caused to fall into the notches, when desired, by means of a bar F and arms *i i*; so that when the upper keys are depressed, the levers G will not be acted upon.

Claim.—1st. The coupler *f* arranged in the cavity of the key.

2d. The double springs *m*, constructed to act each on a valve of each set, so that, by turning it, the two valves may be liberated and capable of removal.

No. 16,094.—Lafayette Louis.—*Improvement in Melodeons.*—Patented November 18, 1856.

The long valve *c* is placed over the treble reeds, and the valve *d* over the bass reeds. In order to produce a tremolo, a vibratory motion is

given to both valves, whereby the force of the air passing downwards through the reeds is varied. The second part of this invention will be understood by reference to the second claim.

Claim.—The use of a long valve or valves placed over the reeds and under the swell, and vibrated in such a manner, by any proper arrangement of mechanical devices, as to break and vary the force of the air passing through the reeds, thereby producing a sound similar to the tremolo in the human voice.

2d. Actuating the tremolo valves so as to impart to them a vibratory movement, by means of the fan-wheel *g* and crank *h*, or their equivalents, made to revolve by a current of air passing through the box *ff* to the bellows, as described.

No. 16,296.—Gideon O. Spence.—*Improvement in Melodeons.*—Patented December 23, 1856.

By operating the pedals L, connected together by racks *m*, the bottom E of the receiver A is operated by the arrangement of a cord J passing over pulley K and fastened to said bottom E, and the action of the springs I can thus be counteracted; the current of air passing between the reeds into the exhausted receiver A on operating the keys G, can thus be regulated for the purpose specified in the claim.

Claim.—The application of the third pedal to the receiver of melodeons, for facilitating the production of the crescendo and diminuendo, in the manner and for the purpose fully set forth.

No. 15,316.—Riley Burditt, assignor to Jacob Estey and Hatsel P. Green.—*Improved Base-Damper for Melodeons, &c.*—Patented July 8, 1856.

E represents the base-damper hinged to the socket-board B and fitting to the seat *d*, within or below the seat of the swell C, in such a manner as to close the sockets of the lower octaves or base reeds. This damper is connected at one end to a spring *e*, which is weaker than the combined springs *a*, which close the swell with a small elbow lever F, which works on a fulcrum pin *f*, and is to have an attachment of a similar character to an organ stop, by pushing in or pulling out which the lever F may be placed in the position shown in fig. 1, or that shown in fig. 2.

Claim.—The base-damper E, applied under or within the swell, in combination with the lever F and spring *e*, so that it may, at the pleasure of the player, be caused to open with the swell, or remain closed while the swell is open.

No. 15,061.—Jeremiah Carhart.—*Improved Machine for Manufacturing Reed-Boards for Melodeons.*—Patented June 10, 1856.

The reed-board B^1 is placed between the bars *h* and the jaws *k*, which latter are forced against the board by turning the cams *m*. The

face of the board is thus always brought at right angles with the cutter H, however taper the board may be. Motion is given to the driving-shaft P, and a reciprocating motion is communicated to the frame D. The frame E is fed a certain distance laterally by means of the pawl 3, which acts against the rack 5; the bar U and pawl 3 being actuated in consequence of the lower and bevelled end of bar U bearing against the roller 4.

Claim.—1st. The means whereby the reciprocating motion with variable stroke is communicated to the frame D, viz: The segment R, which gears into the rack *n* on the frame D, and into the pinion *s* on the shaft M, the pulleys N N^1 on the shaft M, and the shaft Q in the frame L, actuated by the bar S, and the bars *z* z^1 on the frame E, by which the pulleys N N^1 are alternately connected and disconnected with the shaft M.

2d. The dogs F F.

3d. Giving the lateral feed-motion to the frame E by means of the rack 5 and pawl 3, when said pawl is actuated by the bars T U and roller 4.

No. 14,501.—Halvor Halvorson, assignor to Franklin R. Slocum and Robert Watkinson.—*Improved Miniature Case.*—Patented March 25, 1856.

It is very difficult to glue the frame *g* to a surrounding frame of metal. The frame *h* obviates this difficulty, as glue or cement will readily adhere to its inner edge. Figure 1 represents a part of the top view of the case.

Claim.—The combination of the metallic dished bearing plate *c*, the leather or embossed covering *d*, and the two frames *a b*, the whole constituting one portion or half of the case, as specified.

And in combination with the metallic confining frame and the velvet-covered glass-holder and frame *g*, I claim the frame *h*, made of paste-board, or other equivalent, and applied for the purpose as specified.

No. 16,009.—Hiram Groves.—*Improvement in Automatical Musical Instruments.*—Patented November 4, 1856.

This invention consists in making the tunes of a barrel organ adjustable; the projections S on the segmental tune-plates act like ordinary pegs, while the notches act like blanks, which, when placed in due order and under the proper levers, will, by turning the cylinder, make the proper pipes speak at their right times.

Claim.—1st. Constructing the barrel of automatic musical instruments of a prismatical form, and by leaving spaces between the bars or rails covering it, substantially as described.

2d. Notching the rails or bars of an organ barrel, and securing in the said rails a wire, in the manner specified and for the purpose set orth.

3d. Constructing the tunes of automatical musical instruments of metallic segmental plates, in the manner and for the purpose described.

No. 14,955.—EMMONS HAMLIN, assignor to Himself and HENRY MASON.—*Improvement in Reed Musical Instruments.*—Patented May 27, 1856.

The wind-chest C communicates with the expanding chest G through valve H. When this valve is closed, the wind-chest is entirely non-elastic, and the notes feel every pulsation of the bellows A. When H is open, the chest is rendered elastic, and the notes are not affected by the action of the bellows. The opening of H is effected by the pressure upon rod I.

The coupler is composed of a tongue R, which is hinged at *g* to the block S, and is interposed when it becomes necessary to couple the two sets of reeds together between the key E and the lever O; by which means, as the key is depressed, the lever O is forced down, and the valve L of the notes *b* b^1 is opened. When the coupler is drawn back, the tongue R slides down the inclined plane *y* upon the lever O, which is then not affected by the descent of the key E.

Claim.—The combination of a rigid or non-elastic wind-chest C with the ordinary expanding wind-chest G.

2d. The peculiar construction and arrangement of the coupler, consisting essentially of the tongue R, interposed between the lever O and the key.

No. 15,921.—J. C. BRIGGS.—*Reed for Musical Instruments.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The reed, constructed, substantially as described, of a ring or frame A, with a vibrator B, consisting of a disk or plate suspended by a central stem from a spring, to vibrate within the said ring or frame, in right lines perpendicular to the plane of the disk, thereby enabling a column of air of uniform thickness in all parts to be admitted through the reed, and enabling a uniform vibration to be produced all around the reed.

No. 14,970.—PHILETUS PHILLIPS.—*Musical Notation.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The use of a line of a distinct character 1 2 3 4 5 6 7, on which to write each elementary note, and the transposing of such lines to effect and denote the different transpositions of the scale.

No. 15,937.—ABBEY S. SMITH.—*Scale for Instrumental Music.*—Patented October 21, 1856.

The nature of this invention will be understood by reference to the claim and engraving

The inventor says: I do not claim the use of letters to denote musical sounds.

But I *claim* an improvement of the established letter organization of the instrumental music scale, by originating and giving tangible form and shape to a character to be called and to denote sharp key A, and another flat key A, and another sharp key B, another flat key B, another sharp key C, and another flat key C; and the same of flat and sharp keys D, E, F, and G, for which characters I claim different specific forms or shapes of each of the seven adopted musical letters, and different from the adopted shape of the adopted letters; all of which I arrange with other musical characters upon the staff, so that all retain their value, capacity, and position, in perfect conformity to the organic law thereof; and the different keys, in their definite capacity, are in form brought to sight to be read at a glance of the eye, by teacher and learner, as described and set forth, or in any way substantially the same.

No. 14,935.—Thomas Ward.—*Improved Music-Rack.*—Patented May 20, 1856.

The music is placed with its lower edge on the bar G, and the springs *e e* fit over the upper part of the book when opened. The bar G^1, being attached to the arms *f f*, is allowed to adjust itself to accommodate the thickness of the book where it is secured by the adjustable bar D and set-screws b^1, and springs *e e* will yield or give for the same purpose. The book may be moved either to the right or left by operating the bar D. When the right-hand leaf is to be turned, the plate *j* is released from the catch *l* by hand, and the spring *k* will throw plate *j*, together with the leaf, over to the opposite side of the book.

Claim.—The jointed or adjustable bar G and the bar F, provided with the blade L, and attached to the sliding-bars E E by the sliding springs *e e;* the bar G having a plate J attached to it provided with a spring *k*; the above parts being fitted in a frame B which is allowed to fold or be turned in a vertical or horizontal position.

No. 14,992.—Thomas Sands, assignor to Himself and John P. Lindsay.—*Improvement in Parlor Organs.*—Patented May 27, 1856.

As the key H is depressed, the jacks L are vibrated round their pivots *d*, and the valves M, connected thereto by the wires *f*, are opened. The wind-chest F, together with all the parts necessary to give motion to the valves, may thus be placed immediately back of the key-board.

When the coupler bars N are drawn back, as seen in figures 1 and 3, the lower portion of the wires *g* rests upon the bottom of the slots in the stickers K; and as the latter are raised by the depression of the keys, the bars N are vibrated, and the octave of the note struck is also sounded. When the coupler bars are thrown forward, the stickers in rising do not touch the wires *g*, and the octave is not sounded.

Claim.—Arranging the pipes horizontally in compact tiers C E, one

above the other, when each succeeding tier is placed at a greater distance from the wind-chest F than the one below it, for the accommodation of the mouths of the pipes, all the pipes except those of the lower tier C being connected with the wind-chest by means of the conductors G, as set forth.

2d. The peculiar combination and arrangement of the action herein described with the short keys H; that is to say, the combination of the keys H, levers I, the stickers K, and the jacks L, operating in the manner and for the purpose substantially as herein described.

3d. The coupler-rods N with their bent wires *g*, in combination with the stickers K and the auxiliary stickers *p*, for the purpose of coupling the notes with their octaves.

4th. The method of holding the metallic pipes in place by means of the bar P, the rod *m*, and the spring Q, operating in the manner herein described.

No. 15,066.—Daniel Cushing.—*Machine for Rubbing and Polishing Painted Cloth.*—Patented June 10, 1856.

The cloth, received from a shell, is slipped on the shaft roller G; it then passes under the spring roller M, kept moist by water dropping from the trough N. It then passes over the rollers L L L and under the rubbers P P, and is received on the large drum F, by whose surface the cloth is drawn slowly over the machine; from the large drum F, it is wound on a receiving roller O; as the cloth passes the rollers L L L, it is subjected to the action of the rubbers P P, by which the cloth is rubbed.

Claim.—The mechanism constructed and operating substantially in the manner described, for the purpose of rubbing painted or enamelled cloth.

No. 15,065.—Daniel Cushing.—*Machine for Coating Cloth with Paint.*—Patented June 10, 1856.

The nature of this invention will be understood from the claims and the engraving.

Claim.—The arrangement of the several rollers and belts, as shown, wherein I make use of the friction of the cloth on the roller A for the purpose of giving the necessary tension and movement of said cloth when in combination with the means of spreading the paint composition as in the manner shown, and the delivery of the cloth when coated.

Also, the arrangement of the hanging frame G, constructed substantially in the manner described, for the purpose of receiving the cloth for dying, thereby rendering the painting and hanging it a single mechanical operation.

No. 14,260.—Thomas Thompson.—*Improved Machine for Folding Paper, &c.*—Patented February 12, 1856.

The paper, cloth, or other material, passes over the guide-roller J and over the guide-block E, or rather through the small space between

the block E and the folding-doors G G^1 (one of which G is represented shut, the other G^1 open) on to the rollers K K^1, which double the paper together as it passes between them.

Claim.—The forming block, in combination with the rollers K K^1, so constructed and arranged as to draw the material to be folded over said block, and fold it, substantially as described.

No. 15,232.—John L. Harvey and C. A. Mills.—*Improved Paper Clip.*—Patented July 1, 1856.

The outer cylinder *f* is made to slide over the inner cylinder by means of screw *b*, thus enabling the clip A to be raised or lowered to accommodate a larger or smaller quantity of paper.

Claim.—The attachment of the clip A and spring C to the outer cylinder *f*, by which the clip can be raised or lowered, so as to accommodate a larger or smaller quantity of paper, the effect of the spring upon the clip being the same in any position.

No. 16,256.—Charles Moore, assignor to William G. Sheldon, Lorenzo B. Chandler, and Charles Moore.—*Machine for Cutting and Folding Paper.*—Patented December 16, 1856.

The sheet to be folded is placed upon the prongs *f* of the frisket R, which, at the time, is in a horizontal position; it is then suddenly thrown on the machine, by the arrangement of revolving-cam M, lever N, connexion Q, rack P, and pinion O, (fig. 1,) and at the same time cut in two, by means of knife T^2 on bed A, and knife T on frisket R. The blades *v*, attached to levers *e*, are now moved over the sheet until they arrive under the edge of the primary folders X, which latter then, together with the secondary frisket f^2, throw over the part of the sheet lying upon it, by the arrangement of cam *e*, lever *l*, and rack b^3, which operates shaft Z and crank-pin Y; but, by the peculiar shape of cam *c*, their motion is arrested for an instant, when the folds are nearly completed, in order to allow the blades *v* to withdraw, which being done, completes the folds. The blades v^2 now move over the folded sheets, being actuated by lever e^2, and hold them tightly on bed *c;* and the secondary cutters T^3, operated by cam c^2, springs *a*, levers *l*, racks *b*, gears *j*, and pinions *i*, descend down upon cutters T^4, and cut the sheets. The next instant the secondary folding-plates X^2, operated by shafts z^4 and racks b^5, carry over each part of the quartered sheets lying upon them, but stopping an instant in their progress to allow the egress of the blades v^2, then completing the folds, crimping the same tightly, while at the same time the blades *n* come over upon the folded sheets, pressing the same against the folders X^3, which, being operated by shaft z^3, complete the process of folding. The cam c^5 now releases lever *l*, and spring a^4 carries over the sheet and throws it entirely from the machine, as soon as pawl p^2 strikes the projecting part of bed C, and releases the take-off *m*, which instantly flies back before the reception of the next sheet.

Claim.—1st. The use of a frisket with a blade or cutter attached thereto, in combination with a stationary cutter or blade, for the purpose of cutting a sheet of paper in two parts by one and the same operation.

2d. The crimping-blades V V^2 *n*, operating in the manner substantially as specified, and for the purposes set forth.

3d. In combination with the crimping-blades, the use of folders, either with or without the auxiliary frisket, when constructed and operated substantially in the manner set forth.

4th. The use of auxiliary friskets, when operated by projecting-pins, or by any other competent mechanism, in conjunction with the folder, to carry over such parts of the sheet to be folded as will not, when operated upon by the folding-blade, sustain and carry over their own weight.

5th. The combined contrivance of the take-off and the crimping-blade of the last fold, or the combination of the take-off with any other blade designed to co-operate therewith, for the purpose of clasping the folded sheet or sheets, and of carrying them off, and of discharging them from the machine.

6th. The arrangement of the spring and pawl, or their equivalents, operating the take-off, in the manner specified.

7th. The use of sliding or movable beds C C, with hanging-sides D D, as a means of arranging the cutting, crimping, and folding mechanism, and all the cams, levers, springs, racks, &c., which operate the same, so that the machine may be expanded or contracted, without disarranging the parts on which the proper motions depend.

8th. The punching points, or pins, in connexion with the corresponding holes of the crimping-blade *n*.

No. 14,697.—John North.—*Machine for Folding Paper.*—Patented April 15, 1856.

The sheet being placed on the table *b*, and the crank K turned, the sheet is seized by the fingers *d d* and carried under the folding-nippers. The fingers are raised and dropped at the time of seizing the sheet, by means of a pin *e* fastened to the finger-board, (see fig. 5,) a wrist-pin *f*, and the trip-dog *g*, which turns upon a pivot *h*. The dog is provided with a slot *i*, into which the pin *e* enters as the carriage advances, thereby raising the fingers. When the knife *k* is brought under the folding-nipper *m*, the carriage stops, and the middle margin of the sheet is over the edge of the knife.

The nipper is then brought down upon the knife to hold the paper. The nipper, in moving away, carries the folded sheet with it to be folded a second time by the knife k^1 and nipper m^1. The nipper is kept from rising beyond the required position by the check-piece *p* and a stop-piece *t*. The second fold being completed, the sheet is carried back to be subjected to a third folding by nipper m^2 and knife k^2. When the sheet is folded, it is dropped upon the delivery-table b^1. The machine, as represented here, is so arranged that one-half of the sheet is folded

up and the other half down, the part for folding from below being similar in construction to that already described. The sheet is cut in halves by the rolling-cutter c^1 upon the straight edge d^1, and while one-half is carried through and folded, the other goes through a similar course.

The extremities of the bed on which the cut is made are provided with inclined planes, one of which is shown at h^1, (fig. 4.) As the cutting-rollers ascend these inclined planes they are alternately raised and depressed, and the end of the rocking-bar f is forced to pass over the projection of the escapement g, so that it is above the projection when that end of the bar is up, and below when it is down.

Claim.—1st. Folding paper by means of stationary straight-edge, or knife k, and folding-nippers m.

2d. The manner of relieving the sheet from the nipper.

3d. The adjustable check p, and the mode of releasing its hold by the advance of the nippers.

4th. The rotating trip-dog g, for raising and depressing the fingers.

5th. Attaching the knives to the reciprocating carriage.

6th. Operating the reciprocating carriage by means of the crank K, the slotted connecting-rod M, the lever N, and the link P, whereby I attain accuracy and ease of movement.

7th. The cutting-rollers hung on a bar, vibrated and checked.

8th. The arrangement of the T-levers with the double concentric rock-shafts for operating the nippers by one cam.

No. 15,842.—Cyrus Chambers.—*Machine for Folding Paper.*—Patented October 7, 1856.

The paper, when ready to be folded, is placed on the table Y; and when the blade E and pins I I^1 are up, as represented in fig. 1, a single sheet is placed or registered on the pins I I^1, which remain stationary until the blade E descends. When the fine points P on the blade E touch the paper, the pins I I^1 drop below the rollers A A^1, and the paper is seized by them and drawn through doubled. The tapes T turn and slide it on the bars Q until it strikes the stops S, which hold it in that position until acted on again by the second blade F, which forces it through the rollers B B^1, in like manner making the second fold; when, by the second series of tapes, bars, and stops, it is presented for the action of the third blade G, which forces it through the rollers C C^1, thus making the third fold; when it is presented, by aid of the third series of tapes, bars, and stops, for the fourth blade H, which forces it through the rollers D D^1 in like manner; and thus folded the fourth time, it drops on the fly U, which lays it down on the belt 2 2.

Claim.—1st. Causing a folding machine to make the crease for the fold in paper, or other substances, so that any number of sheets fed successively to the said machine may be folded to correspond to the printing or other impressions made thereon by means of the points or register pins I I, or other equivalents, and the holes by which the sheet was registered upon the press, or the holes or marks made in the sheet

for any other purpose; the said pins being adapted to the said holes or marks, and the sheet or substance to be folded placed upon the said pins by using the said holes or marks for that purpose.

2d. The manner of adjusting the register pins I I, and their peculiar movement, as described, for the purposes specified.

3d. Supplying the straight edge or blade, or its equivalent, (which forces the paper into recesses or between converging surfaces, or their equivalents,) with fine points, as and for the purpose specified.

4th. The bars Q Q^1 and the stops S, independent of and in combination with each other, as well as the bars Q Q^1 or the stops S, separately or combined, as described, in combination with the endless belts T T.

5th. Arranging the rollers B B^1 which make the second fold below the rollers A A^1 which make the first fold, and the rollers C C which make the third fold below B B, and in like manner any number of rollers; so that the substance to be folded may be forced downwards between each pair, thereby enabling a single series of endless belts, or their equivalents, to conduct it from one pair of rollers and present it for the action of the next.

6th. The fly U in combination with the endless belts 2 2, and the mode of making the support of the said fly adjustable; also the manner of moving the said endless belt, substantially as described.

7th. I am well aware that endless belts have long been used for conducting paper in folding and other machines; therefore I do not claim them as my invention.

But I claim arranging a single series of endless belts, substantially as described, so that paper or other substances may be conducted by them horizontally from a pair of rollers when passing downwards between them.

8th. Gearing the rollers in such manner as to decrease the speed of the periphery of each successive pair, in the proportion and for the purpose specified.

9th. Controlling the first blade or plate of folding machines by a treadle, or other means, for the purpose specified.

No. 16,266.—Chauncey O. Crosby.—*Improvement in Machinery for Folding Paper.*—Patented December 23, 1856.

A sheet being fed between the rollers C and D, and in front of the fingers *e*, motion is imparted to shaft c^1, cam *c*; coming in contact with a projection on rack-bar *f*, raises said rack-bar so as to turn pinion *g*, and causes the fingers *e* and blade *d* to deposit the sheet on the bed of the machine, when the blade *d* will force the bight of the paper between the griping-bars *h* and h^1, which are now forced together, while the fingers *e* return to their vertical position. Cam G, lever *j*, wheel H, and pinion *k*, will bring over fingers *l* and blade *m* for the first fold of the paper. The griping-bar *h* now releases the paper, and blade *m* forces the bight of the double paper between the griping-bars *p* and p^1, and fingers *l* return to their former position. Cam L, lever M, lever

k^1, wheel N, and pinion *r*, now carry over the fingers *s* and blade *t* to the position shown in fig. 2, to fold the paper the second time, the blade *t* forcing the paper between the griping-bars *w* w^1, the spring R throwing back the fingers *s* to their former position. Cam S, lever T, and rack and pinion *x*, now throw over plate U to fold the paper again by pressing it on platform V, when the bars *w* w^1 will release it, and smooth out the bend, as in former cases.

Claim.—The combination of the blades with the griping bars, when constructed, arranged, and made to operate substantially as described.

2d. The blades in combination with the fingers, when combined and made to operate substantially as described.

3d. The cutting away a portion of the face of one of each pair of the griping-bars, and also of the edge of each of the blades, as shown, so that they may gripe the paper without binding the blades, when constructed and used substantially as described.

No. 15,228.—Arasmus French and Charles Frost.—*Improved Method of Making Boxes of Paper Pulp.*—Patented July 1, 1856.

The nature of this improvement will be understood from the claims and the engravings.

The inventors say: We do not claim as our invention the making of boxes and other articles from pulp, with a perforated mould and by means of a vacuum; but we *claim*, 1st, the method of disengaging the article when formed from the mould, by forcing air upon it, by bringing down the piston Q, or other equivalent means.

2d. We claim the use of the movable block F, and the movable shelf with a cavity in it, as represented in fig. 5, both block and cavity corresponding in shape to the boxes or article made, and being used to receive them and preserve their shape when they are blown from the mould.

3d. The circular groove *a a* in the rim *x x*, (see figs. 2 and 3,) and such a construction of the plate to which the mould is attached as would be equivalent to it; the object of this groove being to receive the water which enters the cylinder through the perforated mould when the pulp is deposited thereon, so that it may be drawn off by the stop-cock *b;* whereas this water, if permitted to remain and accumulate, would, by the pressure of the air upon it, be forced through the sides of the articles formed when they are blown from the mould. We claim no other parts of the machine as our invention.

No. 14,303.—Henry J. Brunner.—*Improved Machine for Edging Wall Paper.*—Patented February 26, 1856.

The roll of paper, indicated by broken lines, is centred upon the points *d*, and the stands N are adjusted to the width to be cut by turning handle S, and thus moving the carriage C, together with the stands, the proper distance sideways. The front end of the paper is secured to shaft T by sliding clamps *e f*, and as it unwinds from the roll and is

wound up upon said shaft T, a strip *s* will be cut from the paper, by means of circular knives *m n*. When the whole of the paper has been wound around shaft T, one of the bearings D of this shaft can be pressed outwards against spring *g*, so as to free the end of shaft T, and allow the roll of paper to be withdrawn from the shaft.

The inventor says: I do not claim revolving shears upon feeding rollers; but I do *claim* the bearing pivots *d d*, supporting arms N N, movable blocks L L, sliding carriage C, and adjusting device S P *b*, arranged and combined in the manner and for the purposes herein set forth.

I also claim the sliding clamps *f f*, constructed and operating substantially as herein set forth.

I also claim the combined arrangement of the rolling and unrolling devices, so that they may be quickly shifted from one side of the machine to the other, for the purposes specified.

No. 14,760.—Edward Baptis.—*Pen and Pencil Case.*—Patented April 29, 1856.

The spiral grooves of the tubes *c g* are cut in reverse directions, and the projection *d* on the band *b* (to which band the pen-holder C is attached) is at one end of the spiral grooved tube *c* when the projection *h* on the pencil slide K is at the opposite end of the spiral grooved tube *g*.

The inventor says: I am aware that pen-holders and pencil-slides have been operated separately by spiral grooved tubes, and I therefore do not claim a single spiral grooved tube; but I *claim* the two spiral grooved tubes *c g*, when arranged so that the pen-holder C and pencil-slide K will be shoved alternately in and out of the case, and moved simultaneously in opposite directions.

No. 15,660.—John H. Knapp.—*Pen and Pencil Case.*—Patented September 2, 1856.

By turning either the plate *d* or case A, the pencil-slide G may be moved in and out from the case A as the pin *b* works in the spiral groove of case H; and by operating the sliding-band E, the pen-slide D may be moved in and out at the opposite end of the case.

The inventor says: I do not claim the manner of operating the pencil-slide, viz: by the spirally slotted tube H and the straight slotted tube F, for that has been previously used, and the pen-slide D is also well known and in common use.

But I *claim* placing the pen-slide D over or upon the tube B, which encloses the slotted tubes F H, the above parts being arranged as shown, so that the pencil-slide is shoved out at the opposite end, and the working parts rendered so compact that an extremely portable and extensive case is obtained, as described.

No. 14,276.—HENRY A. BROWN and JAMES WILEY.—*Improved Fountain Pen.*—Patented February 19, 1856.

When the pen is not in use, the pen is drawn out, as represented in figure 2, so that the slide-valve B is down on its seat, thereby preventing the ink in the ferrule F from communicating with the pen. When in use, the pen is shoved inwards, as represented in fig. 3.

Claim.—The making the pen A with a solid half-circular head B, and arranging it to slide in the pen-holder, (having a face-plate E and e^2, as set forth,) so as to operate as a slide-valve or cut-off to the flow of ink, when operated substantially as hereinbefore set forth, and in form and manner and for the purposes described.

No. 14,425.—A. F. WARREN and C. M. H. WARREN.—*Fountain Pen.*—Patented March 11, 1856.

The piston D is so arranged with its rod C that it may be readily detached from it; so that, when the piston is drawn upward and the fountain filled, the piston-rod may be forced down within the fountain, and thereby allow the cap B to be fitted on the end of the fountain, the piston serving as a stopper. The implement is thereby rendered portable. To the rear side of the pen E is attached a plate G, which forms a reservoir *f* between pen and plate, which reservoir is kept supplied with ink by the wire *g*.

The inventors say: We do not claim the plate G separately; for they have been previously used, although applied to the pen in a way different to that herein shown. Neither do we claim a piston for filling the fountain with ink; for they have also been used for the same purpose.

But we *claim*, 1st, having the piston D and rod C arranged, as shown, or in any equivalent way, so that the piston D may be detached from the rod C when the tube or fountain is filled with ink, for the purpose specified.

2d. We claim attaching the pen E directly to the lower end of the tube A by the band F, and conducting the ink from the tube A to the back or convex side of the pen by the wire *g*, which is attached to the pen and passes through the apertures *e* and *d*, as described.

3d. We claim the plate G attached to the back or convex side of the pen E, in combination with the wire *g*, arranged as described, for the purpose of insuring a regular and even supply of ink to the pen.

No. 15,417.—AUSTIN G. DAY.—*Improved Fountain Pen.*—Patented July 29, 1856.

This pen can be used in the following manner: The tube or holder C is filled with ink and screwed on to the chamber E at D; the feeding-tube R is then shoved upwards by means of the knob *z*; this opens the air-vent *y*, and brings the aperture T above the valve-seat and within the ink chamber. The sliding-tube R now fills with ink, which escapes into the pen L through the opening U at its lower end.

Claim.—The sliding feed-tube, having an aperture near its upper end, whence the ink flows when the pen is in use, the aperture being closed and the ink excluded from the feeding-tube by drawing it downwards into the lower end of the ink chamber.

I also claim the combination of the air hole or vent with the sliding feeding-tube, the enlarged end of which closes the vent-hole when the feeding-tube is drawn down, to stop the flow of ink to the pen.

No. 15,622.—Nelson B. Slayton.—*Fountain Pen.*—Patented August 26, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—The fountain-pencil, consisting of a tube tapering to a point, and slit from said point some distance up two or more sides, said tube being connected with an ink-reservoir, which is closed, except at its connexion with said tube, and from which the ink is caused to flow through the said tube and down the slits thereof, and issue from the point thereof, when the said point is moved in contact with a surface of suitable character to receive an inscription in ink, substantially as described.

I also claim regulating the degree of fineness of the writing or marks produced, by means of a screw-thread *a* and cone *b* on the exterior of the tube, and a nut *d* carrying a conical cup d^1, fitted to the said screw-thread and cone, and acting in opposition to the elasticity of the nibs *g g* of the tube, substantially as described.

No. 16,299.—A. F. Warren.—*Fountain Pen.*—Patented December 23, 1856.

The ink in the tube A passes between the ribs of the stopper D, down the plates *b* and *c*, which hold the pen E. The cylinder A may be filled with ink by drawing the pen within it, and holding its lower end upward, and pouring the ink into it. The pen may then be shoved outward, until the lower end of plug D is flush with the lower end of the cylinder, and the implement is ready for use.

Claim.—Attaching the pen-holder to the sliding-tube B, by means of the rod C, substantially as shown, so that the pen may be drawn within and shoved out from the cylinder or ink-reservoir, as described.

Also, constructing the pen-holder of the two plates *b c* and plug D, substantially as described and set forth.

No. 15,657.—Charles Ketcham.—*Improved Fountain Ruling-Pen.*—Patented September 2, 1856.

This pen is composed of two hollow semi-cones A, which are fitted and held together by means of a set-screw, which also serves to open and close said pen, for the purpose of producing heavy and fine lines. The tongue C, which can be made to slide on the holder B, serves to

clear the passage for the ink when obstructed, and assists in holding the fluid up in the pen by its attraction.

Claim.—A fountain ruling-pen, substantially as specified.

No. 15,490.—T. KENTON LYON.—*Improved Pen-Holder.*—Patented August 5, 1856.

This improvement consists in the use of a conical-shaped piece B, one end of which is made to fit tightly to the holder, the other being so enlarged as to form an annular space around its lower end, the object of which is to prevent the ink from touching the fingers.

The inventor says: I disclaim lips and all improvement in pens, also guards of any kind not forming a deep annular space around the pen, as described. I distinctly disclaim any improvement on or application of improvement to pen and pencil cases of any kind.

I *claim*, on the common straight pen-holder, the guard B attached to or made part of the holder, forming a deep annular space around the pen, or that part of the holder where the pen joins it, for the purpose set forth.

No. 14,286.—FRANCIS JOS. KLEIN.—*Flexible Pen-Holder.*—Patented February 19, 1856.

The upper section *a* is formed with a mortise, into which the rear portion of *b* fits, and into which it is pressed by a spring *d*.

Claim.—A pen-holder constructed in two distinct and separate pieces or sections, so that the lower section *b* shall be a lever, having the metallic rivet *c* as a fulcrum.

Also, the peculiar formation of the chamber in section *a*, and of the arm of the lever; by means of which formation and adaptedness each to the other the holder is rendered more symetrically compact, and a movement of the aforesaid lever is permitted only in one direction, and for a limited distance, and a motion in any other direction is absolutely prevented.

No. 15,223.—ALPHONSO CRAYTEY.—*Improved Metallic Pen.*—Patented July 1, 1856.

The nature of this invention consists in combining with the pen A a pen-protector C and ink-distributor D, by means of a slide B fitting upon the pen previous to its being fitted to the pen-holder. The tongue D draws by its capillary action the accumulating ink from the points of the pen and pen-point protector, so as to prevent any tendency to blot in writing.

The inventor says: In neither of the points does the effects of a spring appear, nor are they used or designed to act as springs or stiffeners for the point of the pen. I therefore disclaim any such use of them, and limit myself to the invention of protecting the point of

the pen from getting broken or damaged when being let fall upon its point.

But I *claim* the pen-point protector C and ink-distributor, in combination with metallic pens, substantially as herein before set forth.

No. 14,203.—Myer Phineas.—*Improved Metallic Pens.*—Patented February 5, 1856.

The plate *a* serves to form a reservoir for ink, and also forms a spring to regulate the action of the nibs. Figure 2 shows the blank with the plate *a* before it has been bent into its proper position, represented in figure 1.

Claim.—The spring *a* when placed upon the upper side of the pen, and so constructed and arranged as to serve the two-fold purpose herein described.

No. 15,992.—John Wilcox.—*Improvement in Metallic Pens.*—Patented October 28, 1856.

The double-pointed pen *a* is held at its middle by the flanges *e* of the plate *f*, which plate is attached to the slide-piece *m* by means of a rivet *r*, so as to turn upon the slide-piece when desired. The slide-piece *m* is movable within the ordinary slide *n* of the holders H, and the point of the pen not to be used is inserted in the opening of slide *n*.

Claim.—The double-pointed pen, in combination with the flanged swivel-plate *f* and slide-piece *m*, constructed, arranged, and operating substantially as and for the purposes set forth.

No. 16,242.—William Lewis and William H. Lewis.—*Improvement in Photographic Baths.*—Patented December 16, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

The inventors say: We do not claim a hinged leg or support to the bath, but we are not aware that the hinged leg and button have ever before been combined together for the purposes specified.

Neither do we claim a glass bath in itself, as baths have heretofore been made of plates of glass cemented together; and also circular vessels have been made use of, and elongated baths of gutta-percha have been used, formed with one curved side. But we are not aware that solid glass baths have ever before been formed in a flattened or elongated shape, with the sides and bottom in a curved shape, as and for the purposes specified.

We claim retaining the nitrate of silver bath in the desired inclined position by the combined operation of the leg *c* and button *e*, for the purposes and as specified.

We also claim the solid glass pot *f*, when formed with the curved sides and bottom, for the purpose of protecting the plate from injury by contact with the bath or any sediment, in the manner specified.

No. 15,854.—Wm. Lewis and Wm. H. Lewis, assignors to Malonzo J. Drummond.—*Plate-Holder for Photographic Cameras.*—Patented October 7, 1856.

The nature of this invention consists in the use of glass corners *h* in the frame *f*, which receives the corners of the glass, or other plate, to prevent the chemicals, which adhere to said glass, from coming in contact with any material that will cause discoloration; and also in the introduction of a receptacle *d* in the bottom of the frame, to catch ny drippings from said plate.

Claim.—Forming the glass or vitrified corners *h* with a flanch or rim in one solid piece, the said flanch or rim taking the edges of the photographic glass or other plate, substantially as and for the purpose specified, and irrespective of the manner in which the said vitrified corners are attached to the frame.

Also, the receptacle *d* below the glass or other plate, to catch any drippings from said plate, substantially as specified.

No. 14,679.—Joel H. Tatum.—*Preparation of Oil-Ground to Receive Photographic Impressions.*—Patented April 15, 1856.

The inventor says: I disclaim everything heretofore known or practised in the production of photographic pictures on paper, or any unoiled surface; but I *claim* the mode of preparing and rendering oil-prepared surfaces impressible or sensitive to the photographic art by the temporary destruction or chemical change of the oil on the immediate surface, by the use of the spirits of wine and alkaline solution; and then the fixing the impression by the use of hyper-sulph. soda and diluted acid, by which last application the alkalies are neutralized and the oil restored, with the impression permanent upon the surface.

No. 15,809.—Daniel J. Kellogg.—*Photographic Instrument.*—Patented September 30, 1856.

The nature of this invention consists in clamping the prepared canvas to a cast-iron ring, of the shape of the picture to be made; so as to form a water-tight basin, into which the iodized collodion can be poured to adapt it for the reception of a photographic impression.

Claim.—My method of converting the canvass itself into a basin, by means of the metal ring, (figs. 1 and 2,) as described.

No. 15,924.—V. M. Griswold.—*Bituminous Ground for Photographic Pictures.*—Patented October 21, 1856.

This bitumen is prepared in the following manner: Asphaltum varnish is diluted to a proper consistency with spirits of turpentine, and to it are added eight ounces of turpentine, one half ounce of bromine, and one ounce of iodine; when thoroughly united, this is bromine-iodized

turpentine, which, added to half a gallon bath of the prepared bitumen, forms what the inventor calls bromine iodized-bitumen.

Claim.—For taking photographic pictures on paper or other substance, prepared by the described or other equivalent process substantially the same, and producing the desired effect.

No. 15,336.—Victor M. Griswold.—*Improved Collodion for Photographic Pictures.*—Patented July 15, 1856.

This invention consists in adding to collodion the clear solution resulting from the whites of eggs and an equal bulk of pure water, which, when used for photographic purposes, will bring out the minor details more sharply and perfectly than the ordinary collodion.

Claim.—The addition of albumen to collodion.

No. 15,341.—Giles Langdell and Marcus A. Root.—*Mode of Tinting Photographic Pictures.*—Patented July 15, 1856.

The nature of this invention consists in applying both mineral and vegetable coloring matters in solution to the daguerreotype, or any other photographic impression, either introducing the said coloring matters into the collodion, or pouring them upon the plate after the impression is fixed.

Claim.—The application of coloring substances or matter to photographic impressions or pictures upon glass or metal, or other material.

No. 14,946.—Albert Bisbee and Y. Day.—*Improvement in Photographic Pictures on Glass.*—Patented May 27, 1856.

Inside of the camera, and at about one-tenth of the focal distance of the lens from the glass, is placed a board having an aperture of any desired pattern intended for the edges. This board shades the edges of the glass, thereby leaving them transparent. The picture, being taken, is then varnished with transparent white varnish, and backed with Japan varnish. The mat-back is then secured in its place with the preserver.

Claim.—Making the border of the picture transparent, and placing the mat-back of the picture, as described, and for the purpose set forth.

No. 15,497.—D. B. Spooner and H. B. Spooner.—*Mode of Coloring Photographic Pictures on Glass.*—Patented August 5, 1856.

When the photographic picture is washed and dried, that portion of the picture which is not designed to take the color is covered with gum, which must be insoluble in the coloring solution. The picture is then colored, and the colors are only deposited in those places which are free from gum. When the picture is colored, the gum is washed off by means of water, which does not dissolve the color.

The inventors say: We do not claim the coloring of a picture all over with a single tint.

But we *claim* the application of gum-arabic, or other equivalent material, as set forth, for the purposes described, and no other.

No. 14,300.—Hamilton L. Smith, assignor to William Neff and Peter Neff, Jr.—*Photographic Pictures on Japanned Surfaces.*—Patented February 19, 1856.

Claim.—The obtaining of positive impressions upon a japanned surface, previously prepared upon an iron or other metallic or mineral sheet or plate, by means of collodion and a solution of a salt of silver and a camera.

No. 14,184.—Levi Chapman.—*Improved Photographic Plate Vise.*—Patented February 5, 1856.

The nature and object of this improvement will be understood from the claim and engravings.

The inventor says: I do not claim fitting a jaw with a limited motion, combined with a sliding-jaw retained by a ratchet or pins, as metallic vises have heretofore been constructed on this plan.

What I *claim* is, the arrangement of the jaw *d* with the piece 3 between the slides 4 4, and beneath the cross-piece *e* acted on by the cam-piece *f*, or its equivalent, when combined with the jaw *c*, changeable in the grooves 2 2, in the sides *b b* of the trough, in the manner and for the purposes specified.

No. 14,509.—N. Murphey Lowe.—*Improved Piano-Forte Action.*—Patented March 25, 1856.

A is the key; B the hammer; C the check; D the back-rail; G the under hammer; *g* is a spring which rests upon the back of the jack E. The spring is steadied by a guide-rod *f*. No friction is produced by this arrangement, while neither the release of the fly nor the blow of the hammer can be felt by the performer.

Claim.—The peculiar manner in which I have arranged the spiral spring *g* upon the rod *f*, as applied between the hammer and the key, for the purposes herein set forth.

No. 14,998.—Joseph Becker.—*Improved Piano-Forte Action.*—Patented June 3, 1856.

The finger-levers G^2 raise the cross-levers F^2; these raise or act on K^2, which raise the jack B^4; this operates on both the damper-lifter A^5 and the jack X, which acts on the hammer-block X^2, and causes the hammer X^6 to strike the strings *j j* and the damper A^7, to prevent the vibration of sound; the lever-wire A^4, to which the strap X^4 is con-

nected, draws back the hammer X^6, by the block X^2, ready to act when required.

Claim.—The double broken action, as shown, (fig. 1,) namely, as follows: G^2 and G^3 H^2 F^2 J^2 K^2 J^3 J^3 N^1 Z Z B^4 A^4 X B^3 Q X^4 X^5 X^3 X^2; the said part or parts being combined and acting together; completing the whole arrangement of the double broken arrangements.

No. 14,948.—William Clark.—*Improvement in Attachments for Piano Legs.*—Patented May 27, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I do not claim metallic connexions, attached together by a key passing through mortises in the tongue and jaws, as these themselves have before been used; but I *claim* securing the metallic connexions C and D, for attaching legs B to pianos or other articles, into the respective parts of the leg and bed A by means of diagonal dowels *a* and *b* taking recesses in the sides of said metallic connexions.

No. 14,383.—Daniel F. Haasz.—*Improvement in the Construction of Grand Pianos.*—Patented March 4, 1856.

This invention consists in so combining the action of grand pianos with the movable or key-frame E, that the whole may, when required, be made to radiate downwards on pins attached to the front of the key-frame and fitting into slots on the sides of the piano case, from which slots the pins may be raised and detached at pleasure; an arrangement by which the whole key-frame and action from the body of the piano can be removed with facility, and at the same time a deep and solid pin-block can be used, which not only dispenses with the multiplicity of iron bars, so injurious to the tone of grand pianos, but also prevents the rattling noise which occurs in the operation of the keys, in that class of instruments, through want of solidity in the pin-block.

Claim.—1st. The combining the action of grand pianos with a radiating key-frame in such a manner as to enable me to use a deep and strong pin-block, substantially as herein set forth.

2d. The key K, with its projection *p* and arrester P, in combination with the lever O and catches *m*, arranged and constructed substantially in the manner and for the purpose specified.

No. 15,915.—Alfred P. Critchlow, assignor to A. P. Critchlow & Co.—*Hinge for Picture Cases.*—Patented October 14, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim a hinge of common construction, or one having each of its leaves bent at a right angle, so that it may be inserted in a mortise made in the side of a case or box.

But I *claim* the application of a hinge of a daguerreotype or picture case, moulded of a plastic material, or made of a frangible substance or substances; said hinge being made with each of its leaves bent twice, as set forth, and so applied to the halves of the box that it may embrace two contiguous sides of such halves, and be independent thereof, and extened or lap over and be fastend to the top and bottom plate of said box, substantially as described.

No. 15,068.—J. C. Dickinson and Robert Bate.—*Improved Pocket-Book.*—Patented June 10, 1856.

This invention consists in attaching a plate B to one side of the pocket-book A, and having hooks *d* secured to one end of the plate, so that when the pocket-book is placed in the pocket the hooks will catch into the lining. When the hooks are not required to be used, the plate C may be fitted over the plate B.

Claim.—The plate B, with hooks *d* attached, the plate being secured at one side of the pocket-book, and used with or without the sliding-plate C.

No. 15,150.—James Shaw.—*Improved Port-Folio.*—Patented June 17, 1856.

The music sheets, maps, &c., designated by D, are secured within the port-folio by passing a needle containing the thread *e* underneath the rings *d*, the needle being fitted in the groove *b* so that it may pass underneath the rings; the needle is then passed through the sheets so that the sheets will be secured to the several rings.

The inventor says: I do not claim, separately, or in itself considered, the roller B; but I *claim* the roller B attached to the covers A A, provided with the grooves *b c* and rings *d*, which are fitted in the grooves *c*, substantially as shown for the purpose set forth.

No. 14,246.—Edward Lindner and Conrad Hoffman.—*Improvements in Porte-Monnaies.*—Patented February 12, 1857.

These porte-monnaies can be fastened to the finger so as to prevent, in some measure, losing the same.

Claim.—The application and manner of connecting to the inside of the porte-monnaie elastic bands *m*, or India-rubber cords or springs, passing through the joint to the outside, so as to be able to attach the same to the finger, substantially as described.

No. 15,891.—John L. Mason.—*Improvement in Porte-Monnaies.*—Patented October 14, 1856.

The leather A of which the pockets of the porte-monnaie are made is of quadrangular form before being folded; a part of it is represented

in fig. 2. The part included between the lines *e e* makes one pocket: this piece is first folded, as represented in fig. 3, in a transverse section; it is then folded in diagonal lines *f g*, so as to bring the two triangular pieces *f g e* into contact with the face exposed in fig. 3, as illustrated in fig. 4. It is afterwards folded back in the lines *h h*, which brings the part shown in fig. 4 to the position shown in fig. 5. Fig. 6 represents a transverse section of two pockets. Fig. 7 represents a section taken in the line *e e* after the folding has been completed, as shown in fig. 5.

Claim.—The construction of the whole of the pockets of a porte-monnaie, or other article of a similar character, from a single piece of leather, by a system of folding, substantially as described.

No. 14,867.—James Hewson.—*Fastening for Porte-Monnaies and Pocket-Books.*—Patented May 13, 1856.

d represents a ring that is fastened to the bottom of the pocket; this ring *d* is hooked in the catch *b*, and holds the porte-monnaie fast to the pocket, unless the hand is forced down to the bottom in order to press upon the spring A.

The inventor says: I do not pretend to be the inventor of springs, catches, and rings; neither do I claim to be the first one that has applied them to pocket-books. But I *claim* the combination of the catch *b*, (fig. 1,) or swivel *e*, (figs. 1 and 2,) and the spring A with the ring *d*, (fig. 1,) attached to the porte-monnaie or pocket-book frame.

No. 15,011.—Christian Knauer.—*Copying-Press.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Adjusting the plates A and D of a copying-press to suit different sized books, by means of a regulating cam C, which carries the top plate D, so arranged that it shall be the bearing of the pressure cam G, either directly or by the intervention of the friction piece *d*.

No. 16,245.—William Moultrie.—*Press for Printing Hat Linings.*—Patented December 16, 1856.

The silk to be printed is guided from roller L between the tapes M and N, first between the feed-rollers 1 and *g*, then it passes between the rollers F and D, where it is sized; the projecting section E receiving the moisture from roller C, which passes through fountain B, thus sizing the silk in those places which are to be printed. The silk then passes around the drying vessel G, and the operator then spreads portions of gold-leaf on the silk at proper distances, which are fastened on it by means of the die X on the heated printing cylinder K. As the silk moves on the revolving brush P, it removes the surplus gold-leaf into the box Q, and the printed silk is lastly deposited in the trough O.

Claim.—The application and employment of the printing cylinder K described, or its equivalents, in combination with the feed and impression rollers, the fountain B, the endless tapes M N T U, the drying vessel G, and the revolving brush P, when used in the manner substantially and for the uses and purposes as mentioned.

No. 14,238.—Anson Hatch.—*Improved Hand-Press for Stamping Letters, &c.*—Patented February 12, 1856.

When the rod E is forced down, the roll J moves down the somewhat inclined cam groove in contact with the lower face C of the groove. By this means the die K will pass in a nearly horizontal direction over and in contact with the inking-roller N until the die has arrived above the bed L, when the roll J has simultaneously arrived at the vertical part of the groove. The roll and die will then vertically descend, and the article upon the bed L will receive the impression. When the rod E is again left free, the die and roll (impelled by spring *b*) will rise and move backward along the inclined part of the groove, the roll being in contact with the upper face J of the groove, so that the die will pass clear of the inking-roller.

Claim.—So combining the arm which carries the stamp plate or form with the cam, as that, by vertical pressure on said arm, it shall move over the inking apparatus horizontally, or nearly so, to be inked, and then descend vertically on to the bed to give the impression; and in returning, pass above the inking rolls so as not to touch them, in the manner and for the purpose substantially as herein set forth and explained.

No. 15,358.—Oliver S. Grover.—*Printers' Composing-Stick.*—Patented July 15, 1856.

The slide B is pressed closely against the bed A by means of guide C, and can be secured at any desired point by the clasp D.

Claim.—The application to the composing-stick of the guide C, to prevent the slide B and the bed A from separating while adjusting the composing-stick, and the clasp D to secure and hold the slide B in its place on A when adjusted as herein described; using for that purpose the aforesaid guide *c* and the clasp D, or any other substantially the same, and which will produce the desired effect.

No. 14,542.—Justus Webster, and Samuel H. Folsom.—*Improved Printing Cylinder.*—Patented March 25, 1856.

The nature of this invention consists in the printing of paper of any desired length in a series of horizontal and transverse lines. The paper to be printed on is placed between wheel C and the driving cylinder B.

Claim.—The construction of the printing cylinder C, consisting of metallic rings or disks placed upon a shaft A^2, side by side; the longi-

tudinal marks upon the paper that is printed by it being produced by those disks having an unbroken perimeter, while the intermediate disks which produce the cross lines have a broken or toothed surface, the combined disks being secured to the shafts by a spline with suitable collars B^2 and nuts C^2 at the ends, as herein described.

No. 14,295.—James F. Starrett.—*Machine for Printing from Engraved Plates.*—Patented February 19, 1856.

The nature of the first claim consists in combining inking, wet-wiping, dry-wiping, and printing apparatus, with a travelling platform mounted upon an arm revolving like the spoke of a horizontal wheel and carrying an engraved plate from one apparatus to the other in succession. The nature of the second claim consists in carrying the plate through the printing cylinders in a straight line perpendicular to the axes of the cylinders, as no impression could be taken without that. The zigzag motion referred to in the third claim has for its object that the wiping cloth and the plate shall describe such relative motions that one shall rub against the other on curves differing at each rub. This is done by means of a flexible connexion between the bed of the plate and the revolving-arm, in combination with a crooked guide track. Figure 1 is an elevation of the machine from the printing-cylinder side; fig. 2, an elevation from the side of the dry-wiping apparatus; fig. 3, a top view of the whole; fig. 4, a bottom-view of one of the travelling-arms (platen and flexible connexion); fig. 5, section through the wet-wiping apparatus, cloth-rollers and cisterns; fig. 6, section through the printing-cylinder and tape-roller, showing the arrangement for feeding the paper; fig. 7, section through the printing and supporting cylinders, showing the platen, etc. The machine, as represented in the engravings, has two revolving arms and two engraved plates.

Cliam.—1st. One or more travelling platforms attached to revolving arms, and carrying engraved plates from inking to wiping and then to printing apparatus in succession, or to any two such; such apparatus being so arranged that the last and first of the series are next in succession, and the arms revolve in the same direction continuously, substantially in the manner and for the purposes specified herein.

2d. I claim causing engraved plates, which are carried around in the circumference of a circle, to be submitted to a printing cylinder in a line parallel to its own axis, and not in radial lines of the circle in which the plates are carried, and then permitting them to pass in contact with said cylinder in lines perpendicular thereto, and not in the arc of a circle, substantially in the manner described.

3d. I claim imparting to a plate or plates thus handed a zigzag or devious progressive motion, while they are passing in contact with certain cloths or rollers, substantially in the manner and for the purpose herein specified.

4th. I claim the flexible connexion between the plates or their beds and the handing or carrying arms, as also grooved tracks, or their equivalents,

acting upon beds so attached; and also these two in combination, substantially in the manner and for the purpose specified.

5th. I claim such flexible connexion in combination with a stop whereby an engraved plate, carried upon a revolving arm, is properly presented to the action of the impression cylinder, substantially as herein specified.

6th. I claim wet-wiping an engraved plate by means of a travelling wet cloth, acting in combination with a plate having a zigzag progressive motion, substantially in the manner described.

7th. I claim an automatic, oscillating receiving-table, in connexion with a printing apparatus, wherein are printed in succession sheets having different matter printed thereon, so that similar sheets may be laid in the same pile, substantially as hereinbefore specified.

8th. I claim the vibrating chaps or fingers K, in combination with the tapes, for completing the delivery of a printed sheet and depositing it upon a table, substantially as herein specified.

No. 15,164.—A. Ely Beach.—*Improvement in Printing Instruments for the Blind.*—Patented June 24, 1856.

The keys A A^1 are all so arranged that their inner ends a a^1 will strike a common centre and leave a raised impression upon the paper at each stroke, thus enabling the operator to form words by merely pressing the proper tape-keys. All the keys A are connected with the lower end of escapement G by means of cord J; and whenever any one of the keys is pressed, the forked end of escapement G will be also depressed; the clock-work will then be liberated and the paper fed along, as shown.

Fig. 3 represents an enlarged section of clock-work escapement.

Claim.—1st. Causing the types to strike at a common centre.

2d. Connecting each of the type-keys, or their equivalents, with the escapement, by means of a common connexion.

No. 14,919.—John M. Jones.—*Printing Machine.*—Patented May 20, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—The manner of attaching the lever D to the wheel A so that the same may turn said wheel, while its fulcrum rests upon a fixed plate N, situated below the revolving wheel A, allowing at the same time a revolving motion, and a motion in the direction of its axis to the wheel A, said lever D being connected with the mechanism by the rod S passing through the hollow shaft of the wheel G. The arrangement and use of the lever C for the purpose of pressing down the type on the paper when an impression is to be made, and at the same time insuring always the right position of the type and wheel A.

I claim the surging wheel G attached to a hollow shaft, having pro-

jections on its periphery corresponding in number and thickness to the type, for the purpose of moving the carriage L, with the paper attached, the exact distance necessary for printing one letter after the other.

No. 14,907.—John H. Cooper.—*Printing Machine.*—Patented May 20, 1856.

The type-wheel H is furnished with a series of characters corresponding with those on the disk D, and so arranged in relation to them that whatever character the conical point *b* indicates, when pressed into its representative countersink, shall be brought into a line of which the paper to be printed upon is the tangent. On the rock-shaft J is connected a presser arm U, which, as said shaft is rocked, comes up behind the paper and presses it against the type.

The connexion and disengaging of the carriage and endless belt *l* are as follows: On the spring-brace M is a projecting piece *r*, which, when the pins *i i* are in the spaces between the teeth of the ratch-wheels P, causes *r* to jam the belt *l* tight up against a cross-bar V of the frame; and thus the friction on the belt between *r* and V carries said frame with the belt. When the line is printed out to the edge of the paper, the pins *i i* are raised out and rested in the concaves on the points of the teeth. This disengages the piece *r* from the belt, and the carriage is run back, whilst the belt may remain stationary.

The inventor says: I am aware that a type-wheel, having upon it vertical type and moving to the paper to give the impression, has been used. This I do not claim. But I *claim*, in combination with a type wheel having its types radially arranged thereon, the pressure-bar U for carrying the paper to the type to receive the impression.

I also claim the manner of connecting and disconnecting the paper carriage and endless belt, together with the spacing of the lines by means of the points *i*, ratch-wheel P, brace M, and its projecting piece *r*, so that the belt may run in one continuous direction, whilst the paper carriage may be traversed back and forth.

No. 14,214.—John Standing, assignor to Himself and James Baxendale.—*Improved Movement for the Doctors of Calico-Printing Machines.*—Patented February 5, 1856.

One end of the shaft *c* of the leading roller C rests upon the surface of an eccentric L, and is held down upon it by means of a spring R. When shaft *c* revolves, the crank-rod I, connected to that end of shaft *c* which is nearest to the eccentric L, will rock the rod G in its bearings H H, and thus (by means of arm *a*) impart a reciprocating motion to the shaft E of the doctor D in its bearings F. When, at the same time, the eccentric L is rotated, the shaft *c* will be elevated and depressed, and thereby the reciprocating motion of the doctor-shaft will be caused to be a variable one.

The inventor says: I do not claim applying to the shaft of the doctor a mechanism imparting to it a variable reciprocating motion, as such

by no means is new; but having invented for such purpose a new mechanism, which is very simple in its construction and efficient in operation—one possessing decided advantages over most if not all others in use, to effect such a result.

I *claim* the combination of the eccentric L, the crank K, the connecting rod I, and lever G, applied to the shaft *c* and the shaft of the doctor substantially as above specified.

No. 14,789.—Samuel W. Lowe, assignor to Jacob M. Beck.—*Machine for Embossing and Printing.*—Patented April 29, 1856.

When the machine has to be used for embossing, the rollers *e* on the segmental roller K are removed, and the pieces *j* j^1 are slid in the direction of the arrow, the notch on the spring *i* retaining them in such a position that the inking apparatus becomes inoperative. When the machine has to be used for printing from engraved plates, prepared by the process, for which a patent was granted on the 18th of September, 1855, these plates are secured by clamps to the rounded portion of the segmental roller K. The small roller on the side of the latter is now replaced, and the plate V in the table U removed.

The arm *d* is so adjusted that the moment the ink has been delivered to its surface, the end of the arm depresses the lever *f*, which moves the sliding pieces *j* and j^1 back, when the inking roller K is removed from the plate on the segmental roller, and retained by the projection on the spring *i*, until the rollers *e* strike the latter as before. When the sliding pieces are moved back by the impression of the lever *f*, the roller *m* is receiving ink from the roller *n*, and this ink is distributed over the surface of the roller *l*, and thence over that of the roller K, preparatory to being applied to the engraved plate.

The inventor says: I do not desire to claim exclusively the employment of segmental or D-shaped rollers for printing and embossing, or the use of such rollers in combination with a traversing frame; neither do I claim the movable inking apparatus described.

But I *claim*, 1st. The employment of two segmental rollers, in combination with a traversing frame or table, said table having a loose plate, by removing and replacing which, the said segmental rollers may be used for embossing, for printing from the engraved plates, for which a patent was granted to me on the 18th of September, 1855, or for printing from common type.

2d. The radial adjustable arm *d*, in combination with the lower segmental roller K, for the purpose of limiting the distribution of the ink to the engraved plates attached to said roller.

No. 14,016.—George P. Gordon.—*Improved Printing-Press.*—Patented January 1, 1856.

The two racks P P bear one against the upper edges of the teeth of one wheel Q, and the other rack against the under edges of the teeth of the other wheel, so that no play is allowed between the teeth of the

racks and those of the wheels. The sheets of paper to be printed are placed upon a feed-board U, and the form is secured to the bed N. Motion is given the shaft B, and a reciprocating motion is communicated to the form-bed N by the pitmen O. When the form-bed reaches its highest point, the lower end of the swinging frame L, which is hung on the shaft M, is thrown towards the cylinder by the shaft K, which receives its motion from the shaft H, the latter being operated by the arm I, the end of which works in a groove *a* in the side of the wheel G. The cylinder R has a rotating reciprocating motion given it by the racks P P and the toothed-wheels Q Q. The sheets of paper are caught by the fingers *n* on the cylinder R; and as they are carried around between the cylinder and the form, the impression is given to the paper, and the printed sheets are deposited upon the fly-board V. Just before the form-bed commences to move upward, the shaft K throws the lower end of the swinging frame and of the form out from the cylinder, and the pawl *e* acts against the rim *m*, and rotates the annular disk X a certain distance. The circular disk W is rotated a corresponding distance in an opposite direction by means of the gearing *j k* and *l*. The disks X and W are supplied with ink from a proper fountain, and the rotation of the disks serves to distribute it evenly on the disks. As the form-bed N descends, the two disks pass behind the rollers T, one or more of which are inked by being in contact with the disks; and one or all of these rollers are thrown in an oblique position when in contact with the bed of the lever S, which is regulated by the irregular groove *f* in the side of one of the wheels Q. This oblique vibratory movement causes the ink to be evenly distributed on the rollers.

Claim.—I do not claim, separately, a rotating disk W for distributing the ink; but I do *claim*, 1st, combining with such rotating disk W an annular disk X, which shall revolve around, and in a contrary direction to it for such purpose.

2d. I claim throwing the same rollers T, one or more, used for inking the form, from the parallel position they necessarily occupy for this purpose to an oblique position, which shall give to them a lateral motion when in contact with the distributing disks, or equivalent, for the purpose specified.

3d. I claim a rotating reciprocating cylinder R, or segment of a cylinder, in combination with a reciprocating bed N, when such bed shall have a movement to and from such cylinder or segment of a cylinder, in the manner described for the purpose specified.

4th. I do not claim placing a reciprocating bed in a vertical position, or in any given angle from a horizontal position; but I do claim so placing the bed, when used with a rotating reciprocating cylinder or segment of a cylinder, which shall drop or pile the printed sheets underneath it, in the manner specified.

No. 14,558.—George F. Folsom.—*Improved Printing Press.*—Patented April 1, 1856.

H is a shaft to which the power is applied. I are pinions upon each end of this shaft, which engage with cog-wheels K, each of which carries two cranks *a*. L L^1 are pitmen which communicate motion from the cranks *a* to the cross-heads M M^1; by which means the platens E E^1 are made to approach the bed-plates C C, and the impression is given. The platens E E^1 are separated from the bed-plates by the springs O O^1. As the segment Z vibrates, motion is communicated to the feed-apron Q^1 by means of rod N^1, lever M^2, pawl *l*, and a ratchet-wheel upon the feed-roll P^1. Q^1 passes over the roller S, running in the arms *r*. The bender T^1 is supported by the arms *q*, and borne down upon the feed-apron by the spring a^2. The paper, having been fed forwards, is placed in the nippers in the following manner: upon shaft *m* rest the arms *r*, which carry the feeding-apron; the instant after the passage of the nippers, the projecting edge O^2 of the sheet of paper is placed therein, the apron being caused to drop sufficiently for the purpose in the following manner: 1^1 is a pulley upon the shaft U, which communicates motion through the band K^1 to the pulley L^1 upon shaft *m;* this shaft is cut out at the point where the arms *r* rest thereon, so that at a certain instant in its revolution, when the notch *n* comes opposite to the notch *p*, the arm shall drop a sufficient distance to enter the sheet of paper into the nippers, which now start forward with this sheet, while the pressure-rod T^1 bears upon the upper edge of the next sheet.

Claim.—1st. The method herein described of giving the impressions with the two platens by means of the gear K and double cranks *a*, operating as herein set forth.

2d. The method herein described of feeding the sheets into the nippers by means of the binder T^1, in combination with an intermittent feed, operating as described.

No. 15,437.—Thomas Parkes and Alfred Parkes.—*Improved Printing Press.*—Patented July 29, 1856.

The sheets to be printed are placed upon the feed-board G; and motion being given the shaft of the cylinder B, said cylinder is rotated, and also the printing cylinders D D and ink rollers C C, the ink rollers inking the forms on the flat surfaces *a a* of the cylinder B. The shaft *s* is depressed by the cam *v*, and the top sheet of paper, having been placed by hand, passes between its pulleys *z* and the pulleys *r* on the shaft *q*, said sheet passing up between the tapes 1 and 9, and then between the tapes b^1 and b^2. The sliding-bars 4 4 being moved upward at this period by the cams J, so that the tapes 1 and 9 may conduct the sheet between the tapes b^1 b^2, the end of the sheet passes upon the shaft q^1 and is grasped by the fingers *d* and carried around the upper cylinder D, and receives its impression from one of the forms; the sheet printed on one side then passes upon the tapes b^3, and the shaft d^1 drops a trifle, the lower end of the rod *j* having the inclined plane a^{**} moved from underneath it, and the sheet passes between the tapes b^1 b^2, and

stops a short time till the other form on the cylinder B reaches a proper point, when the sheet moves backward and is again caught by the fingers on the upper cylinder D, and the opposite side of the sheet receives its impression from the other form. The dwell or cessation of the movement of the sheet is produced at the proper time by the cam L which actuates the slide M, and the reverse movement of the tapes is produced by causing the pulley k^* to bear alternately against the pulleys on the shafts n^1 o^1; the movement of the sliding-frame producing this effect, and the dwell of the tapes being produced in consequence of the pulley k^* being a short time free from contact with either of the pulleys n^1 o^1, but held by the friction shoe k^{**}. The sheet when printed on both sides is conveyed back between the tapes b^2 b^3, and down between the tapes 9 and 10, and passes underneath the heel of a fly A^1 which is operated by pins 1* and one of the cams J; said fly depositing the sheet upon the fly-board H.

Claim.—The cylinder B, having flat surfaces *a a* on its periphery to receive the forms, in combination with the printing cylinders D D, placed in sliding bearings, and arranged substantially as described for the purpose set forth.

2d. We claim the reciprocating shafts 3, 5, 6, and stationary shafts *a a a*, *t u v*, with the tapes arranged as shown, whereby the two printing cylinders D D are fed from one feed-board, and the sheets therefrom, when printed on both sides, deposited upon one and the same fly-board.

3d. We claim the sliding-frame M, arranged and operating substantially as shown, whereby the motion of the belt *l* is reversed at the proper time, and also stopped at proper intervals, and the shaft *d* raised and lowered for the purpose of reversing the movement of the sheets and causing them to be printed on both sides.

No. 15,477.—William H. Danforth.—*Improved Printing Press.*—Patented August 5, 1856.

A detailed description of this invention would occupy too much space to be given here. The principal features will be understood by reference to the claims and engravings.

The inventor says: I do not claim the broad use of a type form, when it is required to be run out upon a stand placed outside of the platen, between every impression, to allow the types to be inked.

But I *claim*, 1st, the travelling bed-plate and its attachments, as described substantially, in combination with the bed B, worm C, shaft and crank C^1, or their mechanical equivalent, and table A^2, the whole being arranged and operated substantially as described and for the purpose shown.

2d. I claim the improved manner that I have designed, forming the two sets of griping-bars I I^1, for insuring an equal gripe upon the sheets throughout their whole length, as set forth; and the manner of arranging the two sets of endless chains to which they are attached, so as to allow the two sets of griping-bars to act together continuously upon

the leading edge of the sheet, from the time that they seize upon it until it is discharged, printed, from the machine. And also the manner of insuring precision and exactness of action to the griping-bars, at the time that they seize upon and relax their hold upon the sheet, by the employment of the bar-separators *m* m^1 and brush P; the whole being arranged and operated in a manner substantially as described and shown.

3d. I claim the movable or vibrating guide and gauge-frame *f*, constructed, arranged, and operated in a manner substantially as described, for the purpose of holding the ends of the curved griping-bars together, while they are required to gripe the sheets, and for giving to the cross-strings *e e e*, by means of the side lips or flanges 6 6, &c., their required degree of tension, to enable them to hold up the centre of the sheets between the cross-bars while passing them across over the types, and also enable them to withdraw the printed sheet from off the face of the types by not allowing the chains H H to be displaced from the lines that they are required to travel in by this act, and for guiding the two sets of chains H H^1 and their attachments across in a line above the face of the types and pile of discharged sheets, substantially as described and for the purpose shown.

4th. I claim the employment of a series of pendants O^1, suspended from movable top-pieces Q, so that they can be moved in or out, to adapt them to the various widths of sheets required to be printed, and keep them always in lines that are parallel to each other, substantially as set forth, for the purpose of uniformly guiding the discharged sheets as they fall to the pile.

5th. I claim the device employed for giving the necessary interval of rest to the feeding-chains, griping-bars, &c., at the time that the impressions are to be given, consisting of the feeding-pulleys J J, feeding-wheel L, ratchet-wheel M, pawl *h*, stud *h*, adjustable grooved disk-wheel N, wheel L, cam-disks *i i*, pawls *k*, pins *b b*, and brake-levers *o o*, as specified.

6th. I claim feeding the ink supply apron between the pressure roller U and the periphery of the ink fountain roller V, in a manner substantially as shown, for the purpose of insuring a graduated and an equal deposit of ink upon all parts of its surface, for the purpose shown.

No. 15,740.—A. Newbury and B. Newbury.—*Printing Press.*—Patented September 16, 1856.

Motion being imparted to the shaft G, a rotating and reciprocating motion is given the printing cylinder E by means of the endless racks C, pitman I, and bars *b*. As the cylinder E passes underneath the edge of the feed-board S, the top-sheet of the paper is caught by the fingers *m*, which are opened by the rod *o*, and closed by the rod *n*. The cylinder E, with the sheet around it, then passes down upon the orm upon the bed B, and the sheet receives the impression as the cylinder moves forward over the form; and when the cylinder reaches the end of its stroke, the fingers *q* on the shaft *g* catch under the edge

of the sheet, and, with the assistance of bar *z*, detach the sheet from the cylinder, the sheet resting upon the fingers *x*, and rotating around, upon, and with the fingers, until the crank *v* strikes against an arm 1, and causes the fingers *x* to be thrown outward from the shaft V, the fingers depositing the sheet upon a proper fly-board.

Claim.—1st. The rotating and reciprocating printing cylinder E, operated by means of the endless racks C, pitman I, and bars *b*, arranged as shown and described.

2d. We claim the revolving fly U, constructed, arranged, and operating as set forth.

No. 16,109.—F. L. Bailey.—*Improvement in Printing Presses.*—Patented November 25, 1856.

Rotary motion being imparted to shaft P, it is transmitted by gearing to cam-shaft O and wheel S, which latter is secured to the carriage F of the ink roller H. By means of this arrangement, the latter is caused to make an entire revolution and pass over the surface of the types in bed D once for each revolution of the cam-shaft O and con equent elevation of platen I, the wheels S and R being of equal diameter. As the ink roller H revolves, the springs *n*, which keep it down upon the surface of the types, also keep it in contact during a considerable portion of its revolution with the distributing roller G.

Claim.—The combination of the stationary bed D with the revolving distributing cylinder G, when the two are placed within the circle of revolution of the ink rolls H, as set forth.

2d. The impression lever M, in combination with the connecting bar L, when the two are so arranged that they may be disconnected at pleasure, for the purpose set forth.

No. 16,221.—Charles G. Sargent and Abram Keach, assignors to Abram Keach and Caleb M. Marvel.—*Improvement in Printing Presses.*—Patented December 9, 1856.

A detailed description of this press would take up too much space to be given here. The paper is fed to the machine by suitable nippers attached to the endless chain-carriers L^1, which receive the paper, carry it beneath the platen D, remain stationary whilst the impression is given, and afterwards deliver it to a fly, by which it is thrown out of the machine.

Claim.—The described method of operating the bed by means of the pins *a* a^1, and the forked lever L, when the motion of the latter is controlled by the spring lever *b*, arranged in the manner substantially as set forth.

2d. The wheels Q^1 S^1 R^1 T^1, constructed as described, and operating in combination with the toes *e* and a^2, in the manner set forth, whereby the nipper chain is fed intermittently, and at the required moment receives a slight motion forward for the purpose of opening one set and closing another set of the nippers, in the manner specified.

3d. The described method of hanging and arranging the nipper-chain L^1 and the platen D upon the wheel I^2 and K^2 and ways N^2, whereby the platen may be moved out of the way when it becomes necessary to change the form, as set forth.

No. 16,263.—G. H. Babcock.—*Improvement in Printing Presses.*—Patented December 23, 1856.

The blank sheet being placed upon the platen *p*, as the treadle *t* is forced down, the form upon bed *b* passes under the inking rollers *m n* and receives a supply of ink; the frisket *v* closes down upon the sheet, holding it in place; and when the bed *b* and platen *p* have revolved around their fulcra b^1 and j^1 so as to assume a perpendicular position, (as shown in figure 2,) the sheet and type are pressed into contact, thus giving the impression. Upon the force being removed from the treadle, the counterweights *w* carry the parts back to the first position.

Claim.—1st. Attaching the bed and platen together by means of the joint *e*, or its equivalent, when each is made to oscillate from a fixed centre, substantially in the manner set forth.

2d. Giving an impression by means of the joint oscillation of the bed and platen, substantially as specified.

3d. Operating the frisket by means of the weight o^1, or its equivalent, in combination with the motion of the platen, substantially in the manner described.

No. 16,138.—Moses S. Beach.—*Improvement in Feeding Paper to Printing Presses.*—Patented December 2, 1856.

A detailed description of this invention would take up too much space to be given here. Figures 1, 2, 3, and 4, represent vertical sections of the printing cylinder, showing the manner in which the sheet is seized at one end and drawn into the press (fig. 1) and allowed to pass out (fig. 2) after the impression has been taken on bed U, and, while being thus printed on the first side, seized at the opposite or tail end (fig. 3), and, by the revolution of the cylinder A, drawn in again, (fig. 4,) printed on the second side, and then discharged completed.

The inventor says: I do not claim the printing of sheets on both sides at one operation; but I *claim* seizing the back or tail end of the sheet, and thus returning it to the types for a second impression, in the manner substantially as set forth.

No. 16,168.—David Baldwin.—*Machine for Feeding Paper to Printing Presses.*—Patented December 9, 1856.

The paper to be printed is folded up at one edge and placed upon the platform A. Motion being imparted to the machine, the spreading-bar *c* spreads out the lap, as represented in fig. 2, when the clamps *d* of the printing cylinder take hold of the advanced edge and carry the

sheet around and over the type-bed, as in ordinary printing presses. The sheet, printed on one side, then passes between the rollers *q*, whence it is seized by the jaws E, which move towards the depresser F, where said jaws are forced together, and the edge of the paper is folded on the reversed side to prepare it to be printed on the other side. The spreading-bar C, attached to the vibrating lever *g*, is caused to rise as soon as it has folded the lap of the top sheet, and then to recede and be ready for the next operation, as illustrated in the engravings.

Claim.—The method described of feeding paper or other flexible material to printing presses and other machines which require the feed of a single sheet at a time, or separate feed of the sheets from a pile or number of sheets, by giving to or forming the sheet or sheets with a lap or fold, and establishing the feed of said sheets, by means of a drawing or spreading out bar, or its equivalent, acting within or against the fold or folds of the sheets, to effect their separation and extension with certainty and despatch, essentially as set forth.

Also, the employment of lap-folded paper, or other material, in sheets, in such machines, when the folds are made the means, by any suitable mechanical appliances, of effecting the ready separation and feed of the sheets.

Also, when combined for operation together with an automatic feed of the lap-folded sheets, a lap-folding apparatus, operating in the manner described, or any other equivalent way, to fold the sheet, after its delivery from the first feed or passage through the machine, for a second passage therethrough, by said feed acting against the fold or lap, substantially as shown and described.

No. 16,311.—Moses S. Beach.—*Machine for Feeding Paper to Printing Presses.*—Patented December 23, 1856.

A detailed description of this invention would take up too much space to be given here; the principal feature thereof will be understood by reference to the claims and engravings.

Claim.—Turning the sheet and delivering it to the impression cylinder for a second impression by means of an extra or second cylinder B, or its equivalent, substantially as described.

Also, the arrangement and construction of the twin fingers J M, operating substantially as described.

No. 14,084.—Samuel J. Chapman.—*Machine for Feeding Sheets of Paper to Printing Presses.*—Patented Janury 15, 1856.

The nature of this improvement will be understood from the claims and engravings. The sheets of paper are marked Z.

The inventor says: I do not claim feeding paper to printing presses by atmospheric pressure, irrespective of the arrangement and construction of parts herein shown; for various devices have been patented for that purpose.

But I *claim*, 1st. Separating and detaching the uppermost sheet of

paper on the feed-board R from those underneath it, and properly presenting said sheet to the fingers, nippers, or other device, by which it is conveyed to the printing press or to the form thereon by means of the box E, valve J, and holder or lifter H; the above parts being constructed and arranged as herein shown, and operating in connexion with a vacuum produced in the box E and a blast through the tube Q, the vacuum and blast being produced by the air-pump B, or its equivalent.

2d. Operating the feed-board R by means of the cams *u*, plate V, spring *m*, and socket T, and screw-rod S fitting into said socket, as herein shown and described, motion being given to the socket by means of a collar X attached thereto by a feather *r*, whereby the feed-board is made to rise and fall, to convey the sheets to the holder or lifter, and the diminishing height of the pile of paper compensated for, and also any irregularity in the thickness of the sheets.

3d. The feed-board R, operated as herein shown, in combination with the valve J, holder or lifter H, and box E, operating in connexion with the vacuum produced in the box E and the blast in the tube Q, in the manner and for the purpose as herein shown and described.

No. 15,639.—David Babson.—*Machine for Feeding Sheets of Paper Printing Presses.*—Patented September 2, 1856.

The sheets of paper are placed within the box Y, and said box is placed upon the bed Q. Motion being given to the shaft C, the pitmen H impart a reciprocating motion to the frame I, said frame rising and descending during each stroke, which rising and descending is produced by the undulations *f* in the lower edges of the frame I and the pressure rollers *s*. As the frame I is moved back and forth, the bar *k* is operated by the lever M, said lever being actuated by the spring N and the curved end of said lever, which bears at intervals against a friction roller *a* on the frame I. The movement of the bar *k* allows the stocks *m m* to expand and contract, the stocks expanding when the frame I reaches the end of its backward stroke, so that, as the frame is depressed, the points *n n* will pass obliquely underneath the uppermost sheet of paper; and as the frame is elevated and passes forward, the points convey the sheet to the endless bands *j*; and as the frame is depressed, the stocks are contracted, and the points *n*, in consequence of the spring e^5, are withdrawn from the sheet which passes between the shafts G and L and upon the bands *j*, which convey it to the spot where it is caught by the nippers attached to the machine for which the sheet is intended.

Claim.—The stocks *m m*, with points *n n* attached; said stocks being placed in a reciprocating frame, operating as shown and described for the purpose set forth.

No. 15,312.—Daniel K. Winder.—*Improved Hand Printing Press.*—Patented July 8, 1856.

The cards to be printed are placed between the slides 13 attached to the under surface of platen 3. The lever 4 is then pressed down,

which causes the cam 5 on shaft 14 to force the platen 3 down, and thus prints the cards. The lever 4 is then elevated, and the spring 11 forces the platen up, and then the printed card can be removed. By the motion of lever 4, the distributor 6 is passed over the inking roller 7, and the types are inked by drawing the form 12 out, which is made to slide on the stock 1.

Claim.—I claim the arrangement of the distributor 6 and inking roller 7 to the platen 3, as represented, and the said distributor actuated by the lever 4 and link 9 only when said lever 4 is made to actuate the vibrating shaft 14, when said shaft is provided with the cam 5, for pressing down or operating the platen, all for the purposes before mentioned.

No. 16 270.—Platt Evens, Jr.—*Hand Printing Press.*—Patented December 23, 1856.

By raising the handle E, the toggle N is depressed; and as the forked end of said toggle slides down the inclined plane of the guide *a*, it strikes stop b^1, which motion carries the platen I to one side, removing it from the ink pad T. The follower F is now pressed down and inked; during this motion the toggle N is lifted, and the spring M carries it over the inclined plane, on the other side of the guide, to the position shown in fig. 1. By raising handle E again, the fork acts against stop *b*, and brings the platen I back to its place under the type form.

By now pressing down the handle E, the device is printed on platen I.

Claim.—So connecting the platen with the follower that the upward motions of the follower shall remove the platen from the ink-pad, and bring it back again; and during every alternate downward motion of the follower, the platen shall remain over the ink-pad and under the type follower.

The mode of communicating the motions of the follower to the platen, the same consisting of the double inclined guide *a*, with its stops or checks *b* b^1, and the forked toggle N, operated by spring M, and having bearings in the short arm of the lever A, as set forth.

No. 15,428.—Samuel W. Lowe.—*Portable Printing Press.*—Patented July 29, 1856.

By grasping the handle *c* of the radial lever C, and moving it either to the right or to the left, so that it shall be clear of the tympan-wire G, the latter immediately, through the spiral springs X, rises to the position shown in fig. 3, when the types can be inked, and the paper placed on the same; then, by drawing the lever C in the direction of the tympan, the roller F will, in the first instance, depress the same, and afterwards, passing over the cloth, leave the desired impression on the paper. The conical roller F can be adjusted by means of the screw *k*.

The inventor says: I do not claim the employment of a cone-shaped roller for giving impressions, well knowing that the same has been employed before.

But I *claim*, 1st. Adjusting the conical roller F, by means of the screw *k*, as specified.

2d. The radiating lever C, with its conical roller F, in combination with the tympan and its spring *x*, the whole being arranged substantially in the manner and for the purpose set forth.

No. 14,772.—John McInnes.—*Machine for Printing Woollen and Other Fabrics.*—Patented April 29, 1856.

Motion is communicated to the wheels B^3 S and G by means of shaft A^3. The cloth and apron being placed in the machine, as seen in the engraving, the platen D^2 is brought up against the block A immediately above it; at the same instant the succeeding block receives its color by the rising of its sieve M. The block cylinder is now revolved by means of pawl D, ratchet-wheel H, and vibrating-arm E, so as to bring the next block over the platen, the sieves being revolved to their proper position by a similar mechanism; another impression is then taken, and the blocks and sieves continue to revolve until the impression is taken from the whole series of blocks; while this is going on, the curved piece *h* has held up the pawl *g*, so as to keep it out of the notches of the ratchet-wheel R^2. The cam *m* now withdraws the piece *h*, and permits the pawl *g* to enter the teeth of its ratchet-wheel and feed the goods. The fabric is again held stationary until an impression has been made by the whole series of blocks, when it is again moved a distance sufficient for another figure.

Claim.—The general construction and arrangement of the machine, that is to say, the vertical cylinder B, with its series of blocks A, in combination with a corresponding series of sieves, or their equivalents, arranged and operating in the manner substantially as herein set forth.

No. 15,574.—Edwin A. Russell.—*Hand-Stamp.*—Patented August 19, 1856.

When the lever E is moved over the inking-bed B, the tail of the trip-hammer I will be made to travel down the groove *d*, against the vibrator *h*, into the space *e* and vertical-groove *f* of the plate L; as soon as it enters the groove *f*, the trip-hammer I will be forced down by the spring K, and striking upon the top of the slider *a* will press the stamp F to the inking-board B, and the former being inked, the spring G will raise the stamp from the board B. When the stamp-lever is then moved over to the stamping-bed C, the rear arm of the trip-hammer will pass down the groove *c*, against the vibrator *h*, and will move the latter across the groove *d*, enter the space *e*, and thence the groove *g*, when the spring K will depress the trip-hammer smartly upon the slider *a*, causing the stamp to be forced down upon the bed C.

The inventor says: I do not claim the combination of a movable stamp-carrier or lever with an inking bed and a bed for supporting a piece of paper or any article to be printed, the stamp being moved by one hand of a person alternately from one bed to the other, and driven

downwards by a blow from the other hand of such person, or a hammer held therein, as I am aware that such a hand-press or stamp is not new.

But I *claim* combining with the movable lever or stamp-carrier E, and beds B and C, a mechanism substantially as described, whereby, during and by the lateral movements of the said lever, or stamp-carrier, from one bed to the other, the stamp shall not only be struck or forced downwards, but raised off the same, in the manner and for the purpose specified; such mechanism being a trip-hammer, with its operating spring, and cam L, and a spring G, constructed and made to act with respect to the stamp and its carrier substantially as stated.

No. 15,764.—CHARLES W. HACKETT.—*Hand-Stamp.*—Patented September 23, 1856.

By the downward motion of cap D, cross-head G, and type-blocks M, and the bolt *u* following in one of the perpendicular grooves *f*, the two sets of type are brought, one upon the material to be printed at F, and the opposite one upon the ink-bed E, to receive a fresh supply of ink; the bolt *u*, passing from the groove *f* into one of the deeper spiral grooves *a*, is guided in the upward motion of the cap D, causing said cap and cross-head to describe half the circumference of the standard A; by which arrangement the types secured to the crosshead are alternately presented to the material to be printed, and to the ink-bed for fresh supplies of ink.

Claim.—The arrangement of a rotating printing press with two sets of type alternating with each other, in such manner that at the same time one set of types is leaving its impression, the opposite or corresponding set is being supplied with ink; the whole constructed and arranged substantially as set forth.

No. 16,167.—NATHAN AMES.—*Improvement in Automatic Hand-Stamps.*—Patented December 2, 1856.

The lower end of the wire D being placed upon the article to be printed, the operator strikes down the handle A to which the type-block is attached; this movement causes the inking roller K which is attached to rod I to glide over the face of the stamp and thus to ink the same, the roller being pressed against said stamp by the action of spring L on the short arm of rod I; as the stamp and type-block move further down, the inking roller K slides up the rear side of the type-block, and is held there during the time the impression is made, as shown in fig. 2. On releasing the handle A, the spring H forces the apparatus into the position shown in fig. 1.

The inventor says: I do not claim, in this machine, the principle by which the inking roller K is made to pass over the bottom and back of the type-block B, that being embraced in a patent granted to me, April 1, 1856.

But I *claim*, in combination with the other parts of any stamp to be held in the hand, the leg or wire D D, so constructed as to strike the

article to be printed in advance of the type-block B, and thereby cause the inking-roller, as described, to pass over the printing surface while the latter is descending.

I do not confine myself to any particular manner, as there may be many, in which the leg B D may be made to communicate motion to the inking roller. But what I *claim* is the leg D D, both independently of the inking apparatus, and also combined with it and the other parts of the stamp in any manner substantially the same as that described.

No. 14,548.—NATHAN AMES.—*Improved Self-Inking Stamps.*—Patented April 1, 1856.

I is a strong wire spring, which, acting upon the lever H of the roller G, presses the roller against the block E.

Claim.—In combination with the frame A A and shaft C, the above-described arrangement of devices, by which the type or printing surface is inked and the impression produced by one downward motion of the hand or other power applied to the perpendicular shaft C, the inking roller G (being acted upon by two forces, the perpendicular and diagonal, as described) moving first over the bottom of the type-block E, and then over the back side of the same.

No. 14,670.—WILLIAM LOYD.—*Improved Stereoscope Case.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engraving.

The inventor says: I do not claim the use or construction of stereoscopic lenses, which were known and used before my improvement.

But I *claim* the construction of a grooved box A, in combination with the stereoscope lenses *a a*, to hold a number of pictures; and the adjustment of the focus by means of placing the picture in one of the grooves *c c*, &c., more or less distant from the lenses, according to the eyesight of the spectator.

No. 15,386.—EDWARD PELOUZE, Jr.—*Improved Valve for Type-Casting Machines.*—Patented July 22, 1856.

When the plunger C is raised, the metal in the vessel A passes in between *m* and *o*, and, driving the valve *n* and stem *r* forward, closes the exit *e*, and allows the metal to descend through the duct *b* into the well. When lowered, the button *n* is driven back against its seat, closing the inlet and opening the exit. By this arrangement the metal is prevented from chilling at the point of the nipple, and spirting at improper periods out of said nipple.

The inventor says: I am aware that a stopper, operated by machinery, has been used in connexion with the nipple of a type-casting machine; this I do not claim.

But I *claim*, in combination with the nipple, the self-acting valve and stopper, made and operating substantially in the manner and for the purpose set forth.

No. 15,340.—JULIUS J. KOENIG.—*Machine for Composing and Distributing Type.*—Patented July 15, 1856.

The illustration represents a perspective view of this machine, a detailed description of which would occupy too much space to be given here; the parts to the right represent the arrangement for composing, and those to the left the arrangement for distributing the type.

Claim.—I claim the arrangement of parts, substantially as described, for the purpose of composing and distributing type.

No. 15,501.—RICHARD M. HOE—*Method of Securing Types on Rotary Beds.*—Patented August 5, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—Securing or holding the column rules a^1 in their places on the bed by means of the feet *a*, which fit into rebated grooves in the bed, and have plates or keys *b* fitted over their lips or edges b^1, substantially as shown and described; and I claim this, whether the strips or plates B C D E are used in the usual quoins *a*, or any other device for wedging or binding the types and rules in the bed.

No. 16,102.—CHARLES M. ZIMMERMAN.—*Tail-Piece for Violins, &c.*—Patented November 18, 1856.

The recess *f* in the tail-piece K serves to confine the portion of the strings not required for immediate use. In connecting each string to the tail-piece, it is passed through one of the holes, and wrapped around a bent pin M with a single turn; the point *m* of the pin is then forced into the enlarged portion of the hole alongside of the strings, thus connecting the latter to the tail-piece as securely as if it were fastened by the ordinary knots.

Claim.—1st. The tail-piece K, with its recess *f* and loose cover *h*, constructed substantially as described and for the purpose specified.

2d. The employment of the pins M for securing the strings by a single fold to the tail-piece, in the manner set forth.

No. 14,860.—SAMUEL F. FRENCH.—*Improved Bow for Violins.*—Patented May 13, 1856.

By pressing on the protruding end of pin *f*, the hairs *d* are forced forward. The spring *h* acts upon the pin to force it back together with the hair.

Claim.—The attachment of a portion *d d* of the hair of the bow to a movable pin *f*, or its equivalent, operating to separate the said portion *d d* of the hair from the main body of hair in the bow, or to unite it therewith at the pleasure of the player.

No. 14,056.—Morris Falkenau, Morris Pollak, and Solomon Wiener.—*Improved Watch Key.*—Patented January 8, 1856.

The nature of this invention consists in the peculiar construction of parts, whereby the pipe 3 of the key is projected from the case 2 by means of a spring 6, when the same is to be used, and which pipe is afterwards to be again forced back into the case and retained by the spring-catch entering the hole 7; thereby said pipe is out of sight and the ornamental character of the key is not injured by the same.

Claim.—The key 9 on the pipe 3 pressed into the groove 10 by spring 6, and sliding in said groove 10, which is closed at its outer end, and thereby causing said pipe to be turned by the case, compensating for wear, and also regulating the extent of motion of said pipe, as specified.

Also, we claim the trigger-piece 8, combined with the stud-spring , to remove said stud from the hole 7 and allow the pipe 3 to be projected from the case, as specified.

No. 15,073.—William Hart.—*Improved Tool for Watchmakers.*—Patented June 10, 1856.

This invention consists in the peculiar construction of the tool, as clearly shown, whereby the tool may be used as a pair of calipers, pliers, or a hand-vise.

Claim.—Having the jaw C attached to the upper part of the leg A of the calipers, and the jaw D connected to the upper part of the leg A^1 by links *d d*, the jaw D having a shank *b* attached to it, the shank passing through a slot in the leg A and bearing against a spring *c*, and the shank *b* having a rod *f* attached to it, which rod passes through a hollow screw *e* which is attached to the jaw C, the screw *e* having a nut E upon it, substantially as shown, for the purpose specified.

XIX.—FIRE-ARMS.

No. 15,315.—Charles E. Barnes, assignor to Moses W. Oliver and Chales E. Barnes.—*Improved Automatic Cannon.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claims and illustration.

Claim.—I claim the arrangement by which I impart a reciprocating and intermittent motion to the breech-pin H by gears H^2 and J^2 and cams G^2 and I^2, so that the gun or cannon may first receive the cartridge, bringing the nipple on which the percussion cap is placed in the centre, and immediately back of the end of the cartridge, ready for firing.

I also claim giving the ramrod or plunger Y a reciprocating and intermittent motion for placing the cartridge Y^2 within the gun and firing it, when so placed, by means of a hammer Y^5 in the plunger Y, operated by the spring D^3 and latch *c*.

I also claim the cap-wheel D^2 and its slide-rods *u* and D, so arranged and operated as to place or deposit the cap upon the nipple L^5 when the breech-pin H is drawn back, so that it can then be advanced or slid into the gun, with the cap placed on the nipple L^5 therein, ready for firing.

I also claim the cartridge-box J, so arranged and operated by the breech-pin, or otherwise, as to deposit the cartridge into the receiver S^3 ready for the plunger or ramrod to force it into the bore of the gun.

I also claim the catch i^3, or its equivalent, on the latch *c*, or otherwise formed, arranged, and operated, to stop the movement of the firing apparatus, to prevent accidents and clogging the cannon with surplus ammunition.

No. 14,215.—Charles C. Terrel, assignor to Himself and Samuel Crawford.—*Improvement in Many-Chambered Breech-Loading Cannon.*—Patented February 5, 1856.

The breech-piece D can be moved transversely so as to bring either one of its two chambers in line with one of the magazines M or M^1 and ramrod L or L^1, which latter are worked by levers R R^1. As the lock-lever N is raised about its fulcrum pin *j*, the wedge *i* is raised simultaneously, so as to allow the toes *h* to move the breech-piece D slightly backward preparatory to its being moved transversely. The priming tube *m*, being pivoted to lever N at *r*, is also raised, together with lever N, and wedge 14, striking the projections *s* on valve E, shoves this valve back so as to allow one of the detonating pills to pass from the pill magazine F into the priming tube *m*. When the lever N is again brought down, the wedge *i* forces the breech-piece forward into close contact with the barrel G by means of wedge *i* being forced downward

behind the breech-piece, and the pill is exploded after the lever N has been brought down to its lowest position by the hammer *k*, which is pivoted to lever N. The hammer is held up by means of the spring-trigger *l*, which is attached to lever N and works laterally to the hammer, and it is actuated to explode the pill by a main spring *y* secured to the lever.

The inventor says: I do not claim the invention of the wedge to force a movable chambered breech into connexion with the barrel. I *claim* the combination of lock-lever N, the wedge *i*, and the toes *h h*, in any manner substantially as described, for the purpose of forcing up and drawing back the breech to and from the barrel.

2d. I claim the priming tube *m*, with the stationary priming magazine F, to take a new priming therefrom every time the position of the breech is changed by attaching it to the lock-lever N, and furnishing it with a wedge or inclined projection 14, to open the valve of the magazine when the lever is raised to unlock the breech, substantially as described.

3d. The combination and arrangement of the hammer, trigger, and main spring, with a lock-lever N, which is employed to lock and unlock the breech to and from the barrel, substantially as herein set forth.

No. 15,357.—Josiah Dodge.—*Improved Mode of Charging Cannon.*—Patented July 15, 1856.

6 represents a forked lever, one prong used for drawing the guide-pins 8 from the openings 9 made in the side of the wheel 3, by actuating the springs 7 and 14, while the other fork of the lever is furnished with a socket-shaped end and used for revolving the wheel 3 to the proper points for presenting the charges 5 of the tubes 4 to the cannon barrel 10, by prying the wheel around with lever 6; and when revolved to the right point, the guide-pin 8 slips into one of the openings 9, which gives the tube 4 the right position to be presented to the cannon barrel 10, whcih is then effected by sliding the frame 2 on the frame 1 until the tube 4 comes in contact with the barrel, and is then held to its place during the time of firing by means of the lever 11.

Claim.—The arrangements of the springs 7 and 14, guide-pin 8, openings 9, and forked lever 6, for the double purpose of revolving and guiding the tubing on the periphery of the wheel to the ends of the cannon barrel.

No. 14,850.—Jesse S. Butterfield and Simeon Marshall.—*Improved Cartridge Opener.*—Patented May 13, 1856.

The nature of this invention consists in forming the spring-toothed jaw or cut-off (fig. 3) connected to the upper band (fig. 2) or convenient to the muzzle of the gun, operated in such a manner that a person may open the cartridge with less exertion and without that distress produced by disease of the mouth resulting from the present method.

Claim.—The combination of a steady pin, thumb-piece, toothed jaw

and spring, or their equivalents, attached to the upper band of the gun, arranged and operated in the manner and for the purpose as herein set forth.

No. 15,141.—Edward Maynard.—*Improvement in Cartridges.*—Patented June 17, 1856.

The inventor says: I am aware that cartridge cases of a tapering shape have been made of sheet copper, or other hard metal, combined with soft metal rings, as described and represented in a patent granted to A. E. Burnside, March 25, 1856. And I am also aware that the said cartridge can only be used in a movable breech-piece, and that it does not possess in other particulars the peculiar advantages which distinguish my improved cartridge for breech-loading fire-arms.

Therefore, what I *claim* is my improved cartridge for breech-loading fire-arms, composed of a hard metal cylindrical case *a*, charged with powder, and combined with a projectile *b* of such shape that, whether the case receives a large or small charge of powder, the said projectile is self-retained in contact with the powder in such a position that its point must be coincident with the axis of said case, and a perfectly tight joint formed between said projectile and case by filling the grooves in the former with greasy matter.

No. 15,707.—Julius Riedel.—*Improvement in Cartridges.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—Making the pointed ball cartridge, as described and shown.

1st. That the shape of my cartridge is such that one end is naturally loaded heavier than the other, as represented by section *a c b d*, thereby causing that end to go forward, thus guarding against all revolving motion, except a single winding or peristaltic one.

2d. As novel, the constructing the hemispherical end of the cartridge stronger and heavier than the conical end, having several objects in view, viz: that the loading of shot or balls on the inside may be kept together a considerable distance after leaving the gun, that the lighter conical end may serve to keep the whole in the given direction till the cartridge is burst, and, when burst on or near its base, give free egress to its contents.

No. 15,996.—George W. Morse.—*Improvement in Cartridges.*—Patented October 28, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The combination and arrangement of the cartridge case, as constructed, with the priming apparatus, as constructed, or their equivalents; whereby I effect the entire exclusion of any and all escape

of the gas produced by the combustion of the powder of the cartridge and priming, except by the one channel and the bore of the barrel of the gun, the breech-joints and priming-vent being thereby so effectually sealed and closed that no air can escape at these parts of the gun after the charge is fired, until the cartridge case is withdrawn from the bore, although air blown in at the muzzle before firing the charge might escape through these joints, as it would in the case referred to.

No. 15.369.—George Buckel and Edward Dorsch.—*Improvement in Fixed Cartridges.*—Patented July 22, 1856.

The nature of this invention can be understood by reference to the claim and illustration.

The inventors say: We do not claim broadly the use of two or more balls, or a ball and shot, in the same cartridge.

But we *claim*, 1st. The arrangement side by side in the same cartridge D, with their axes in the same circle, of a number of balls of cylindro-conoidal or other partly cylindrical form; said balls being of a size to fit each to a separate groove of a circular grooved barrel, such as herein described.

2d. The employment of a single partition piece *B* to separate each and all the balls, substantially as herein described, for the prevention of their union when the charge explodes.

No. 14,077.—James H. Merrill.—*Improvement in Fire-Arms.*—Patented January 8, 1856.

The cavity L is intended to prevent to some extent the escape of smoke through the joint round the pin. The bolt M enters the groove *m* at the end of the breech-pin. After the button-end I of the breech-pin F has been inserted into slot I^2, the outside is covered by a dove-tailed cover J.

The other parts of the improvement will be understood from the claims.

Claim.—The construction of the breech-pin F, with a receptacle *c* for tallow to lubricate the joint, as herein set forth.

Also, the depression L in the breech-pin opposite the end of the bore, as I have found it advantageous.

Also, the combination of the button on one end I of the breech-pin, and the slotted plate I^2 in connexion with which the button works, to secure the breech-pin firmly in place while the breech is closed; in combination with a catch M, or the equivalent thereof, at the opposite end of the breech-pin, to prevent the pin from dropping out while the breech is open, and the button in a line with the slot; by which means the breech is securely closed while the charge is exploded, and the pin, at the same time, capable of being readily removed.

Also, the arrangement of the rammer C, in the rear of the breech, in combination with the breech-pin, substantially as herein set forth.

Also, the combination and arrangement of the breech-pin; the lever for turning the same; the trough (H) to receive the charge and guide the rammer (C) in such manner that the lever, when shut down upon the stock, will cover and protect both rammer and charging channel, substantially as herein set forth.

No. 14,095.—Joseph C. Day.—*Improvement in Fire-Arms.*—Patented January 15, 1856.

The short arm h^1 of the tumbler is jointed to bar *i*, which terminates in a spring *i*, which slides in a slot *a*; and the other end terminates in a pin *k*, which passes through a slot in lock-plate E, and enters, at the outside, a notch in the projecting piece F of slide H^1, and transfers the motion of the tumbler to the slide H^1. When hammer G is brought back to full cock, slide H^1 moves backward with it, and follower *s*, (provided with two spring tongues s^1 and projections *t*) catches in the next hole of slide H^1. By discharging the hammer, slide H^1 moves forward, and the follower catches in the next hole of row *pp*, where it remains when slide H^1, returns.

Pin *k*, which terminates in a button F at the outside, can be forced out of the notch in piece F^1 by the fingers, as the slot in back-plate E is for this purpose enlarged at the lower side; and then slide H^1 is drawn out just enough to bring its inner end behind the follower, and then again pushed in. This action drives the follower out of tube H, which is then filled with caps, and the follower inserted behind them.

Claim.—1st. The improved construction of the cap-feeding tube H, with a slide H^1 on one side, a row of holes *q* in said slide, and another row of holes *p* in the side opposite; the one for the purpose of moving the follower *s* along, and the other to prevent the follower returning with the slide, substantially as herein described.

Also, communicating the motion from the tumbler to the slide H^1 by a vibratory arm *i*, or its equivalent; and also adding a spring thereto, in combination with the elbow slot *k*, whereby said slide may be readily connected and disconnected from the lock and cap-tube, substantially as specified.

Also, extending the lower part of the main spring *l* from its pivot l^1 to, and causing it to rest upon, the sear *n* at a point l^2 very near over its centre, in order to dispense with a separate supporting stud and sear spring, and also to enable the lower part of said main-spring to be made nearly equal in length and strength to the upper part, substantially as herein described.

No. 14,667.—Palmer Lancaster.—*Improvement in Fire-Arms.*—Patented April 15, 1856.

Before the trigger is drawn back to raise the hammer, the tooth *h* lies close to the bevelled side of the head G^1, as shown in dotted lines in fig. 2. As the trigger is drawn back, the tooth *h* is caused to work through a notch *e* e^1 and in contact with the inclined side e^1 thereof, and to move the sliding-breech A. In letting the trigger forward again,

the tooth *h* passes back through the same notch; but in returning, it works in contact with the straight side of the notch, and is caused to swing away from its bearing on the head G, and is inoperative on the breech; but as soon as it rises clear out of the notch, it swings back close to the head, ready to enter the next notch.

Claim.—The operation of the transversely sliding many-chambered breech A, by means of the notches $e\ e^1$ in the breech, and the swinging inclined tooth *h*, applied to the trigger, and acting substantially as herein set forth.

No. 14,774.—Frederick Newbury.—*Improvement in Fire-Arms.*—Patented April 29, 1856.

The magazines of cartridges and caps being filled and the pistol cocked, a cartridge passes into the chamber of the block D, and a cap is pressed upon its cone Y. The pulling of the trigger drops the hammer L, which permits the block to ascend by the agency of lever G and spring E; just before the hammer touches the cap, the little nick in the lever lying under J permits the spring E to carry up the block and bring the load-chamber and the bore of the barrel into range an instant before the cap is exploded, and at the same time places the upper end of lever G against a small stop *p* upon the block, in order to hold it firm to the barrel against the recoil.

The inventor says: I do not claim a movable block for load chamber nor tube-magazines.

But I *claim*, 1st. The method of operating the block D by the hammer, in combination with the forked-lever G, the spring E, and recoil stop-pin *p*, reference being had to the peculiar form of the lever G.

2d. The formation of the front trigger-guard into a sear-spring M, and its attachment to the lower end of the trigger.

No. 14,905.—Samuel Colt.—*Improvement in Fire-Arms.*—Patented May 20, 1856; England, March 3, 1853.

The inventor says: I do not claim as my invention the method of rotating the many-chambered breech in fire-arms by a driving pin or bolt, operated by the cock or some part of the lock moving in unison with the cock and sliding in a series of grooves cut in the periphery of the rotating-breech or some part connected with it, which grooves are so formed that in the act of firing the driving-pin or bolt will run in one groove without turning the breech, thereby holding the particular chamber in line with the barrel, and in the act of cocking pass into and along another and diagonal groove, so formed as to rotate the breech and bring the next chamber of the breech in line with the barrel preparatory to another discharge, as this method has long been known.

What I *claim* is, combining with the driving-pin or bolt *g*, and with the series of diagonal and longitudinal grooves *c* and *b* for rotating the breech *a*, and holding each chamber in line during the discharge, the series of short longitudinal grooves *e* for locking the rotating breech so

that the hammer can rest on the solid metal between two chambers instead of the nipple, to prevent accidental discharges.

And I also claim, in combination with the said driving-pin or bolt, and the series of long longitudinal and diagonal grooves, the lateral grooves *f* or inclined planes *d*, to admit of turning the breech by hand when the hammer is at half-cock.

No. 15,032.—Frederick Blacket Edward Beaumont.—*Improvement in Fire-Arms.*—Patented June 3, 1856; England, February 20, 1855.

The spring *i i* is so applied as to constantly press the driver *h* against the ratchet of the magazine. *l* is a hook fixed to the lower part of the hammer; it enters a slot *x* formed in the driver *d*, which is thereby raised when the hammer is put back by the thumb, the trigger *a* at such time being raised into position to discharge the hammer by a very short pull.

When the hammer is being cocked, the operation of the hook *l* in the slot *x* simultaneously causes such a back movement of the trigger as will effect the rotary movement of the magazine or series of barrels. Thus, either by a back pull on the trigger, or one on the hammer, the magazine may be put in rotation, so as to bring up into the path of the hammer the nipple of the barrel next to be discharged. When the trigger is pulled for the purpose of discharging the hammer, the driver *d* will be forced upwards between the click *f* and the hammer, and will operate as a wedge to force the click *f* out of the notch by which it retains the hammer in its highest position. The hammer, on being relieved, will be thrown downward by the retractive power of the main spring *r*.

The inventor says: I do not claim to raise and discharge the hammer of a revolver by the action of the trigger, when separately considered; neither do I claim to arrange the lock of a revolver in such manner that the hammer may be cocked by hand, when separately considered; nor do I claim to rotate the magazine of barrels of a revolver by a mechanism so connected, either with the trigger or the hammer, that a pull on either of them shall effect such turning of the said mechanism; but when the hammer has a mechanism by which such hammer may be set to cock by a direct pull upon it, and when the trigger, hammer, and rotary series of barrels, are so combined that, by a backward pull on the trigger, the hammer shall be elevated, the series of barrels turned, and the hammer set free or discharged, I *claim* combining with the hammer and trigger a mechanism (viz: the hook *l* and slot *x*, or their mechanical equivalent or equivalents) whereby the trigger shall be drawn backward and the series of barrels turned while the hammer is being drawn back by a direct pull on it, as specified.

No. 15,041.—George Kesling.—*Improvement in Fire-Arms.*—Patented June 3, 1856.

D D^1 represent two locks, the forward one D^1 being connected to the trigger *a* by means of rod *b*, which passes through a groove in the stock

B under the barrel C. A portion of the rear of the barrel is used as a magazine, to contain a number of charges, in the following manner: first, a usual charge of powder *c*, then a bullet *d*, well patched, to prevent the fire from communicating around the bullet, each bullet acting as a breech to the charge d^1 d^2 and *c* in advance of it. The bullets d^1 d^2 and *c* have holes through them, provided with a fuze, which will take from the charge in front of it the fire and communicate it to the next in rear of it. 1, 2, 3, are air-holes for the escape of the air.

The inventor says: I am aware that a series of charges have been used in fire-arms, in which the balls were perforated and furnished with a fuse for the purpose of igniting the rear charge by the discharge of the one in advance of it by means of said fuse; but no provision has been made for the escape of the air in driving the balls home, whilst the ball and patching must bear tight to prevent the fire from driving past the ball. I do not, therefore, claim such a fire-arm; but I *claim* the constructing of a gun or fire-arm for firing a succession of shots, thus forming a new article of manufacture superior for practical purposes to any now in use.

No. 15,144.—Henry S. North.—*Improvement in Fire-Arms.*—Patented June 17, 1856.

The nature of this invention will be understood from the claims and engravings.

Fig. 2 is a front-face view of the rotating recoil-shield.

Fig. 3 is a view of the same, looking from underneath it, showing also the stopper.

Fig. 4 is a side view of the toggle by which the cylinder is forced up to a tight connexion with the barrel.

Claim.—First: The employment of a toggle-connexion *l l* between the cylinder D or the rotating recoil-shield E and the stock; for the purpose of allowing and producing the longitudinal movement of the cylinder to enable it to clear the barrel C in revolving, and of forcing the cylinder up to the barrel to make a tight connexion therewith.

Secondly: Placing a regulating screw *n* between the front end of the toggle-connexion and the cylinder or recoil-shield, for the purpose of adjusting the connexion between the cylinder and barrel without requiring a great degree of accuracy in the fitting of the toggle movement, and for the purpose of compensating for any wear.

Thirdly: Connecting or combining the dog J, by which the rotating motion of the recoil-shield and cylinder is produced, with the toggle-connexion *l l*, in such a manner that it is operated by the bending of the toggle to allow the cylinder to move back.

Fourthly: Though I do not claim of itself the use of a positive stop or catch to lock the cylinder after its rotation, as such, connected by complicated devices with the trigger and otherwise, has before been done, nor yet claim the mere employment of an additional ratchet to prevent back rotation of the cylinder, I do *claim* causing the cylinder, during the one portion of its longitudinal movement, to form a ratchet-

connexion with a spring-stopper g^1, that admits of the cylinder's rotation only in the one direction, but, on the completion of the cylinder's rotating movement and at the termination of the back longitudinal travel thereof, forms a positive stop to the cylinder by means of the ratchets *g g* and stop-pins *h h* on the sliding-cylinder or recoil-shield, arranged and acting in concert with the stopper g^1, essentially as described.

No. 15,202.—James Warner.—*Improvement in Fire-Arms.*—Patented June 24, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—1st. The combination of the recoil and adjusting pin *e* with the revolving breech A, placed in the shield-plate *b* in such position that the point shall be in line with the barrel.

2d. Forming cavities *i* i^1 in the battery-plate C in such position and of such form as to receive and hold the ball or balls in case of the accidental discharge of any of the chambers not in adjustment with the barrel.

No. 15,167.—Fordyce Beals.—*Improvement in Fire-Arms.*—Patented June 24, 1856.

The arm-pivot or axis B is so connected with the hammer D as to move or vibrate with it; and thus, by means of the arm B and its connexion with the hammer D and the pawl C, the chambered breech A is operated upon by the pawl C at a point near its periphery, thereby giving greater force to the rotating movement of the chambered breech or cylinder than is obtained by others now in use.

The inventor says: I do not claim as my invention the use of a metallic frame connected with a chambered breech or cylinder by means of a pin passing through the frame and cylinder; neither do I claim the invention of rotating the chambered breech by means of a pawl and ratchet in connexion with the hammer. But I *claim* the arrangement and combination of parts, using the arm-pivot or axis B in its connexion with the pawl C and hammer D, for the purpose of rotating the chambered breech or cylinder A; all of which are in the manner and for the purpose as herein described, using the arm-pivot or axis in its combination and arrangement of parts, or any other contrivance substantially the same, and producing the same effect.

No. 15,292—James Edwin Halsey.—*Improvement in Fire-Arms.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claim and illustration. By means of this arrangement all the powder is burned before any portion of it is blown out of the barrel, giving consequently a greater range and more force of penetration to the ball.

The inventor says: I do not claim igniting the charge in the centre nor in its whole length simultaneously, nor at its forward end when a needle is used to explode a fulminate placed in the ball or between the ball and the powder; but I *claim* the tube *a*, constructed of such a length, and placed in such a position that it shall serve as a means for communicating fire from the cap to the forward end of the charge of powder only, substantially as described and for the purpose specified.

No. 15,347.—George H. Soule.—*Improvement in Fire-Arms.*—Patented July 15, 1856.

The nature of this invention consists in the application of a copper, or other tough or malleable metal breech-plug K, in combination with a wrought or malleable iron breech-piece D; also in protecting the bore of the charging chamber L with an annular ring M of a similar soft metal, for the purpose of obviating the wearing away of the breech face, caused by the action of the gases of the exploded powder upon iron or steel.

Claim.—The use of the facings of copper, or other equivalent tough metal, less oxidizable than steel or iron by the action of the heat and sulphur gases, caused by the explosion of the powder, in combination with the breech-piece and charging chamber.

No. 15,521.—Frederick D. Newbury, assignor to Richard Varick De Witt, Jr.—*Improved Fire-Arm.*—Patented August 12, 1856.

By withdrawing the bolt E by means of the thumb-piece *e*, the releasing T spring attached to the arm D throws the latter down by turning it on the hinge *d*, and the breech is now open for inserting the cartridge. The apparatus for closing the breech consists of a conically shaped piece H, to the front end of which is secured a thin cup-shaped piece of metal M, the object of which is to furnish an elastic stop, which, if not perfectly tight when in position, may, by the pressure of the gas in firing, have its edge forced up against the surface of the chamber. The self-priming apparatus consists of a groove J K, which contains the tape priming, which latter is held by means of spring S; when the lever D is raised, it operates upon the lever *p* by means of a pin passing from lever *p* into groove L, and feeds the tape towards the priming-tube.

Claim.—The releasing spring T, to throw the arm D promptly down to permit a recharge of the piece.

I claim the concave breech seat M or its substitute. I claim the method of arranging the tape priming, by inserting the same through the stock, in the manner described, either with or without metal tubing J K.

I claim the spring *s* when applied to the stock to prevent the retraction of the tape, and to cover the priming from the weather, arranged substantially as shown and described.

I claim the feeding spring piece *p*, in combination with the lever D as its moving power.

No. 15,522.—Abner N. Newton—*Improvement in Fire-Arms.*—Patented August 12, 1856.

The cartridge is inserted through the mortise B in the rear end of the barrel A; the breech-pin D receives its horizontal and rotary motion by means of the lever C. The rear end of the breech-pin D is provided with a circular groove for the reception of the ends of the two concentric tubes E F; these tubes are slitted their entire length, and placed so that their slits are on opposite sides to each other, so as to break joints. These tubes completely overlap the joint formed by the barrel and breech-pin, and being expanded by the pressure of the gas at the instant of explosion, they preclude the possibility of escape.

The inventor says: I do not claim the self-adjusting thimble, constructed and operating in the manner set forth in J. D. Green's patent, June 27, 1854.

Neither do I claim a sliding collar on the breech, forced against the end of the barrel by a spring acting on the trigger, as in J. C. Day's patent, December 18, 1855.

Nor do I claim a cone-headed pin and five or more expanding rings, in combination with a radial breech, as in B. F. Joslyn's patent, August 28, 1855.

Nor do I claim inserting a metal ring into the slide, with a chamber in the rear of said ring, as in H. Conant's patent, April 1, 1856.

But I *claim* two or more expanding bands, as shown and represented, in combination with the chamber and sliding breech-pin, completely overlapping the joint between said breech-pin and chamber, substantially in the manner and for the purpose described.

No. 15,516.—Frederick W. Hoffman.—*Improvement in Fire-Arms.*—Patented August 12, 1856.

By drawing the hammer to half-cock, the cap *b* is thrown clear of the end of the barrel, and the bore is left open. The cartridge can now be inserted into the barrel, and by drawing the hammer to full cock, the toe *r* gliding along the curve r^1 brings the cap down in place over the barrel, and the piece may now be fired by pulling the trigger in the usual way.

Claim.—So combining the cap *b* with the cock that the opening and closing of the end of the barrel shall be effected by the act of cocking the piece, substantially as set forth.

No. 15,734.—Edmund H. Graham.—*Improvement in Fire-Arms.*—Patented September 16, 1856.

The ball is inserted into the chamber *e*, and the powder into the chamber *c*, both chambers being placed at right angles to each other. The chamber from which the discharge is to take place is covered by a protecting plate *k*, which thus prevents any other of the charges from exploding; and if the powder in any of the other chambers should be-

come ignited, it would be consumed without expelling the ball from the cylinder, as the powder, not being confined, has no surface to react upon.

Claim.—1st. Arranging the chambers in which the powder is placed and the chambers in which the ball is placed at right angles to each other, or nearly so, and so as to communicate with each other, as described, and for the purpose specified.

2d. Covering each powder chamber at the time of the discharge with a protecting cap or plate, as described.

No. 15,797.—Joseph Adams.—*Improved Fire-Arm.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claims and engraving.

The inventor says: I am aware that gun and pistol barrels of three or more bores have before been used, but having either a mass of useless metal or an unnecessary space in the central portion between the bores; therefore I distinctly disclaim such an arrangement.

But I *claim* the employment of a revolving barrel, formed from a single piece of metal, with three bores of equal diameters, or four bores in opposite pairs of unequal diameters, when so arranged that the bores are located as near together as practicable, to secure the proper strength of dividing metal, while the relative positions of said bores are such that their outermost tangents shall revolve in a common circle around the central point between them, and be equidistant apart, the outer periphery of the barrel also so conforming to the bores, as to dispense with unnecessary metal, for the purpose of securing the utmost compactness, lightness, symmetry, and strength, with a given capacity, and at the same time of retaining perfect convenience in respect to revolving and discharging, substantially as specified.

Also, the employment (instead of separate breech-pins) of a single breech-piece, provided with branches or pins fitting the several bores, and secured therein by a right-and-left nut, for the purpose specified.

Also, the socket B, in combination with the breech-piece C and collar E, substantially in the manner and for the purpose set forth.

Also, the peculiar construction, arrangement, and combination of the hammer, main-spring and trigger, as adapted to the rest of the gun, and operating both to hold the hammer cocked and down upon the nipple until set free by moving the trigger, substantially as set forth.

No. 15,925.—Alexandre Le Mat.—*Improved Fire-Arm.*—Patented October 21, 1856.

The operation of this revolver is as follows: The cartridge-cylinder B being charged in the usual way with bullets, and the central barrel with shot, the pistol-cock, as represented at No. 11, is used in the position of fig. 2, the hammer *a* operating upon the caps of the revolving

cylinder B. When the central barrel A is to be fired, the ring *m* is pressed down, thus releasing the point *i* or cock *b*, and the cock *b* is turned into the position of fig. 3; and then, by releasing ring *m*, the latter is pressed upwards by the action of the spring *o*, and falls into notch *h*, securing the cock from turning; in this position, upon operating the trigger, the cock *b* will act upon the cap of the central shot-barrel A, and will discharge its load.

Claim.—1st. The substitution of a shot-barrel for the solid cylinder or pin upon which the revolving cartridge-cylinder of revolvers, constructed upon Colt's or similar systems, revolve, in the manner and for the purposes as described.

2d. The gun-cock No. 11, with a double hammer *a* and *b*, constructed and operating substantially as described, and for the purposes specified.

No. 16,124.—Alexandre Le Mat.—*Improvement in Fire-Arms.*—Patented November 25, 1856.

The operation of this apparatus is as follows: By placing the hammer in the position as represented in the engraving, the cord O attached at *o* raises finger E E^1 from the dotted position, and causing it to move upon its pivot G, it pushes the catch Q into the position marked in dotted lines. The gun is then discharged by the usual pulling of rope D D^1. The hammer B falls, and after having ignited the primer, recedes from vent S to the dotted position; but in this retrograde movement, the cord P P^1 attached at *p* p^1 being pulled, withdraws catch Q from under the finger; hence, immediately after the receding of the hammer, the finger, set free, is forced upon the vent by spring H, and the vent thus remains closed until the cleaning of the gun and its recharging is completed.

Claim.—The combination and arrangement of the hammer and finger with the mechanism, as described, whereby the retrograde movement of the hammer, after the ignition of the primer, produces an automatic closing of the vent by the finger.

No. 14,057.—L. H. Gibbs.—*Improvement in Breech-Loading Fire-Arms.*—Patented January 8, 1856.

This invention consists in hanging the barrel *c*, at some point *d* between its two ends, on a sliding and turning joint *f*, in combination with the connecting of the said barrel by a joint-link *h* with a lever *j*, below jointed in turn to the stock *a*, by means of its fulcrum pin *l* and catch *m*; so that, by moving the said lever downward and forward, the barrel shall be first pushed forward to open the breech, and then elevated to bring the open end thereof above the fixed breech for the insertion of the charge; and then by moving the lever *j* back to its original position, the rear end *v* of the barrel shall be depressed and then drawn back against the fixed breech to close the rear end thereof. It further consists in combining with a sliding-barrel *c*, made with the rear or breech end open, a fixed breech-pin *u*, which fits the bore of the rear end of

the barrel, in combination with an annular recess *v* surrounding the said breech-pin, to receive the rounded edge of the rear end of the barrel, to prevent, as much as possible, the escape of gases, and, in case of any escape, to deflect them towards the muzzle.

Claim.—Hanging the barrel at some point between the two ends on a sliding and turning-joint, in combination with the connecting of the said barrel of the turning and sliding-joint, by means of a joint-link, with a hand-lever, having its fulcrum in the stock or breech-piece, as herein described, and for the purpose specified.

2d. In combination with a sliding-barrel having the rear end thereof open, as described, the employment of a fixed cylindrical breech-pin, surrounded by an annular recess, to receive the rounded edge of the barrel, as described, and for the purpose specified.

No. 14,253.—William H. Robertson and George W. Simpson.—*Improvement in Breech-Loading Fire-Arms.*—Patented February 12, 1856.

The breech E having been slid into position represented in fig. 1, the cartridge is to be put into opening *c*, and then the breech to be slid back. On the opening *c* is permanently attached a thin piece of steel, projecting a small distance all round over the opening; the projecting part being bevelled to a sharp edge, to allow it to be flexible, and spring outwards by the concussion of the discharge; by so doing, it is pressed suddenly against the sliding socket covering the same, and thus makes it completely gas-proof.

Claim.—The sliding socket-breech, constructed and operated in the manner and for the purpose substantially as herein set forth and described.

Also, the flexible spring-check, to prevent the passage or escape of gas in breech-loading fire-arms, in the manner substantially as herein set forth and described.

No. 14,491.—Ambrose E. Burnside.—*Improvement in Breech-Loading Fire-Arms.*—Patented March 25, 1856.

Fig. 3 shows the cartridge case. The hole *c* corresponds to the cone-seat d^1 of the breech-piece F. In order to loosen the empty cartridge case from its chamber, a slight motion is given to the cone-seat, by means of the groove *b* and the pin *a*, which is fastened to the stock A. H is a bolt which passes through the stock A in the rear of the movable cone-seat. The bolt is made to revolve by the handle I, and its cylindrical portion is caused to enter a corresponding cavity *g* in the breech-piece.

Claim.—1st. The use of a cartridge case, made partially or wholly of soft metals, in combination with a bevelled mouth in rear of the barrel, and the movable chamber C of a breech-loading fire-arm, for the purpose of packing the joints thereof, and operating in the manner substantially as therein set forth.

2d. The movable cone-seat or breech-pin, in combination with the soft metal cartridge-case, operating in the manner substantially as herein described, to eject the empty cartridge case, as set forth.

No. 14,554.—Hezekiah Conant.—*Improvement in Breech-Loading Fire-Arms.*—Patented April 1, 1856.

A is the stock; B the barrel; S the breech slide, with the chamber *b* for the reception of a ring *a* of either shape, as shown in figs. 2 and 3. Fig. 4 shows a face view of the slide. The ring is inserted for the purpose of making a tight joint.

The inventor says: I do not claim the self-adjusting thimble, constructed and operating in the manner as represented in T. D. Greene's patent, June 27, 1854; neither do I claim a sliding collar on the breech forced against the end of the barrel by a spring acting on a trigger, as in J. C. Day's patent, December 18, 1855. Nor do I claim a cone-headed pin in the breech, which pin has two or more expanding metal rings acting on the cone, as in B. T. Josylin's patent, August 28, 1855. But I *claim* inserting a metal ring into the slide with the chamber in rear of said ring, as shown and represented, and for the purpose substantially as herein set forth and described.

No. 14,780.—Simon F. Stanton.—*Improvement in Breech-Loading Fire-Arms.*—Patented April 29, 1856.

As the cocking lever H is depressed, it retracts the spring hook *h* by means of link *k* and lever *l*, which hook, coming in contact with the teeth *i* upon plate B, revolves this plate, and with it the charge-chambers, one-sixth of a revolution. The inner extremity of one of the charge-chambers, being no longer sustained in its vertical position by the flange E of the breech-piece, strikes against lever F, and by it is gradually raised into position in line with the barrel. When in this position, a spring *m* holds it up against the breech-piece until the joint between the chambers and the barrel is covered.

I is a ring upon one end of the rod *k*, having a notch at one extremity, into which enters a pin *n* projecting from a plate *o*. Pivoted to the lock case *p* is a finger upon the opposite side of the plate *o*, against which a pin *r*, projecting from the link *k*, strikes as the lever H is returned to its place; by which means the rod K is moved in the direction of its arrows (fig. 3), and the ring is drawn over the joint.

As the lever H is thrown down and the spring hook *h* is drawn back, the pawl c^1 engages with the arm x^1 of the lever, and carries the other arm x^2 against the finger *p*, and thus the rod K is moved in a direction contrary to its arrow (fig. 3), and the ring I is drawn off the joint before the spring hook engages with the teeth *i* to revolve the charge-chambers.

Claim.—1st. Raising the chambers A into line with the barrel by the action of revolving them, in the manner substantially as herein set forth.

2d. The peculiar form of the breech-piece D, with its elevated and

depressed portions D D^1 and inclined planes *a* a^1; whereby, as one charge-chamber is raised into line with the barrel, the one last discharged is forced down by the inclined plane a^1 into its vertical position.

3d. The method of securing the chambers in position without interrupting their motions, by means of the lever F.

4th. I claim the ring *t*, constructed and operating for the purpose of arresting the motion of the revolving chambers, and closing the joint between the barrel and the chamber.

5th. I claim the combination of devices, or their equivalents, whereby the ring I is driven forward to release the charge-chambers before they are revolved.

6th. I claim the safety stop for the purpose of preventing the fall of the hammer whenever the ring I is not drawn over the joint between the barrel and the charge chamber.

No. 14,949.—Nathan S. Clement.—*Improvement in Breech-Loading Fire-Arms.*—Patented May 27, 1856.

The nature of this invention consists in providing breech-loading fire-arms with India rubber packing D in such a manner that the pressure on the head of pin D will compress the rubber and cause the breech to be air and gas tight.

Claim.—Rubber packing, or that material which is substantially the same, in connexion with breech-loading fire-arms.

No. 15,072.—Henry Gross.—*Improved Breech-Loading Fire-Arms.*—Patented June 10, 1856.

When the lever B is thrown forward, the chamber, by means of the slot and pin in the eccentric lever, is drawn back away from the end of the barrel M; and by a further forward movement of the lever, the chamber L is thrown upward by its coming in contact with the shank of the lever at the point *e*, and in a position to receive the charge. The lever is now drawn backwards, and the chamber is brought down upon its bed; and by a further movement of the lever, the chamber, by the eccentric on the end of the lever, is forced forward upon the end of the barrel, making a tight joint. The primer U is a circular box with a wheel and scroll-spring, into which percussion caps are placed and forced forward through the tube of the primer to receive the nipple K, when the chamber is raised for loading, (fig. 3.) To prevent the explosion of caps in the primer, a follower I is attached, the upper part of which covers the orifice in the end of the primer when the nipple is down, and is forced away from this point by the chamber and nipple in being raised upward, as seen in fig. 3.

The inventor says: I am aware that breech-loading fire-arms have been constructed, in which the chamber is drawn back and elevated, and then thrown down and moved forward, by means of lever and cam attachment and other analogous devices. These constructions I ex-

pressly disclaim, as where they are used the force of the explosion is either brought upon the pin on which the breech turns, or is resisted by a surface on one side of the axis of the breech.

But I *claim* the breech-piece L and eccentric lever B, working together, as described, in combination with the breech-seat F, to which the axis of the breech is normal at the time of discharge, whereby the pin around which the breech turns is relieved, and loosening from recoil prevented.

Also, the primer U and the follower I, in combination with the nipple K, working together as described. All other parts of said fire-arm I disclaim.

No. 15,240.—B. F. Joslyn.—*Improvement in Breech-Loading Fire-Arms.*—Patented July 1, 1856.

The valve B is pulled down by means of the ring E, and the cartridge is passed through the oblong groove F cut in the dove-tail piece C into the barrel A, when the valve is returned to its original position.

Claim.—A sliding-valve B in a chamber, substantially as shown, for the purpose specified; also, combining the spring O with the valve, for the purpose as shown and described.

No. 15,307.—William Mont. Storm.—*Improvement in Breech-Loading Fire-Arms.*—Patented July 8, 1856.

When the hammer is lifted to full cock, the bolt *e* is withdrawn just clear of the breech *b*. While the thumb still rests upon the hammer, the forefinger is hooked under the enlarged head of the usual vent-screw, and the charge-chamber is lifted out of its bearings and thrown over upon the top of the barrel, in the position shown by dotted lines, its muzzle directly facing the operator for the convenient insertion of the cartridge. When the chamber is thrown back into its original position, and does not come exactly to its bearings, it is adjusted by the bolt *e*. As the explosion takes place, the portion of the charge first ignited forces the tubular valve B into its seat. This description, together with the claims and illustration, will explain the nature of this invention.

Claim.—1st. The arrangement of a portion of the barrel at the rear sufficient to contain the charge, to swing by a hinge upon the exterior (as quite distinct from oscillating upon trunnions) out from the line of the bore, for the most convenient insertion of the charge, in combination with the stationary wedging incline at the rear, with which it is made to correspond, and which receives the recoil.

2d. In combination with the so hinged chamber, the long tapering valve face, projecting across the joint so far as by itself to bolt the chamber into the barrel to such an extent that no lateral force or blow can displace it from the exact line of the bore, or (as would be the case with an "obtuse angle" of valve face) wedge the face of the valve laterally against its seat, while at the same time the taper of said valve

face shall be such in relation to the joint of the hinge that it shall swing out of and into its seat without slide upon the latter.

3d. Making such valve face upon the end of a loose tube of some hard, unplastic metal, projecting or extending back into the loading chamber, of which it constitutes an essential and permanent part, and of such strength and thickness that it shall effectually resist any change of size or form by the force of the explosion or expansion thereby outwardly against the interior of the chamber by which its freedom to drive bodily forward as designed, in the manner of a poppet valve into its seat, by the force of the explosion to close the joint would be prevented, said tube being formed open to the full size of its bore at both ends, and thereat slightly exceeding the bore of the gun, for reasons rendered clear, and as is essential.

4th. Extending the rear of the so constructed tube so far back into the chamber, and no farther, that the annular edge of its open rear shall terminate opposite to or slightly in front of the point of first ignition of the cartridge; so that, while its end at this point terminates and fits closely against the cylindrical sides of the chamber to prevent the explosion from passing between them, the edge of its end or the annular surface facing rearward being left purposely exposed to the forward force of the explosion, the tube will be forced ahead to close the joint between the chamber and barrel at the earliest instant of discharge; to the end that, if the ball should be a loose fit in the tube, and at the same time not a "Minie," and thus permitted escape of gas past it before it reached and tightened in the creases, the gas should not be left free to pass through the valve joint, causing "cutting."

5th. In combination with my tube, so operating and constructed, a finger or edging of soft metal soldered to its rear annular edge, and bevelling off rearward thinner than the tube itself, so that this thinner edge shall be easily driven by the explosion slightly forward and outward into the annular corner formed by the edge of the tube and the side of the chamber, closing the joint between them tightly at this point, but leaving them elsewhere a loose fit, while such thin edging of soft metal cannot have stiffness sufficient to prevent both it and the valve from being freely driven forward in the chamber by the explosion.

6th. The bolt *e* projecting through the recoil bearing into the breech, and so connected with the lock that it must move continuously and simultaneously with the hammer, the fall of the hammer upon the cap being thus under all circumstances made dependent upon the bolt having properly entered and secured the chamber; while, moreover, by this means the bolt, which might otherwise be prevented from flying forward into the breech by rust or dirt, is forced home by the whole power of the lock.

7th. Tapering the forward end of said bolt beneath, that if the chamber is not quite home to its place when the trigger is pulled, the bolt will bring it so before the hammer reaches the cap.

8th. Connecting said bolt with the "tumbler" by the slotted head, embracing the headless stud or screw in the tumbler; so that, there being no actual attachment of the bolt and the lock, the latter may be removed in the ordinary way without regard to the former.

9th. Cutting away the recoil bearing below the centre of the bore, to insure that the explosion shall tend to throw the chamber the more tightly down into the stock, in lieu of any chance tendency upward out of its seat.

10th. The fixed, unyielding stud and bearing-screw for receiving the force of this downward action, that it may not be exerted upon the under side of the valve face.

11th. Forming the recess in the stock beneath the chamber to receive any powder spilled in loading with a "broken" or leaky cartridge, so that it shall not block under the chamber, and prevent its coming down to a horizontal line, and in contact with its bearing.

12th. The arrangement of the hinge of the chamber upon the top of the latter, in lieu of elsewhere, whereby the chamber is thrown over in the most elevated and unobstructed position for the insertion of the cartridge; while the barrel will then bear the weight of the chamber, (when open,) and not the joint of the hinge, and the stock need not be cut away and weakened, as would be the case if the chamber swung laterally, and at the same time the hinge can constitute the "crotch" sight.

13th. Making said hinge a spring, and so arranged as to yield in case of any obstruction tying or adhering in the valve face.

14th. Swivelling the chamber, so that when open it may be turned with its mouth vertical for convenient loading with loose ammunition, while the weapon lies horizontal, &c.

No. 15,496.—Gilbert Smith.—*Improvement in Breech-Loading Fire-Arms.*—Patented August 5, 1856.

This invention consists in forming a groove *a* around the chamber, near the extreme rear thereof, to produce a lip *b* from the solid metal of the rear of the chamber of sufficient thinness and flexibility to be driven back against the breech by the force of the explosion of the charge, and thereby to prevent any escape of gas.

Claim.—Producing a flexible lip *b* from the solid metal of the rear of the chamber, to operate as and for the purpose set forth, by forming a groove *a* around the chamber at a short distance from the extreme rear thereof, substantially as described.

No. 15,990.—Thornton A. Washington.—*Improvement in Breech-Loading Fire-Arms.*—Patented October 28, 1856.

The charge is inserted into the funnel-shaped passage F of the revolving breech-cylinder C, and is thence pushed into the chamber D of the barrel B, as represented in figure 1. The breech-cylinder C is then turned into the position of figure 2, by which the chamber D is closed; and as the charge is fired, the flange *r* of the cylinder *i* is pressed against the breech-cylinder C, thus effecting a tight joint and preventing the escape of gas.

The inventor says: I make no claim to the removal of the breech-piece so as to expose the base of the bore to receive the cartridge, as such construction would be inconsistent with my mode of closing the joint; neither do I claim, of itself, a revolving perforated breech. But I *claim* the revolving cylinder-breech C, having the funnel passage F and the interior flanged cylinder *i*, in combination with the chamber D and breech seat, arranged and operating substantially as and for the purposes specified.

No. 15,995.—George W. Morse.—*Improvement in Breech-Loading Fire-Arms.*—Patented October 28, 1856.

To charge and prepare this gun to be fired, it is only necessary to pull up and back the cover *d*, which carries with it the other movable parts and cocks the hammer 9; a cartridge is then inserted and the cover *d* is thrown forward and latched, when the gun is ready to be fired. If desired, the gun can be uncocked and the firing reversed.

Claim.—Inserting the rim N, or its equivalent, without contact, into the chamber *o*, substantially in the manner and for the purpose described; contact being attained through the medium of a cartridge case.

Also, the nippers S, and the mode of operating them by the pins *r* and the shoulders 7 on the hammer, or equivalents therefor, substantially in the manner and for the purpose described.

Also, the combination of movable parts, or their equivalents, whereby I retract or deliver the gun of a cartridge, drop it, open and clear the way for the insertion of another cartridge, whether the previous charge was fired or failed to fire, and cock the hammer automatically at one motion, substantially in the manner described.

No. 16,070.—Gustave Scharffe.—*Improvement in Breech-Loading Fire-Arms.*—Patented November 11, 1856.

When this gun is to be loaded, the handle F, and with it the breech-pin E, is turned so that the openings D and D^1 correspond, through which the cartridge is introduced into the barrel B; by this motion of the handle F, the projection G acts upon the projection P of the hammer H, thereby pushing said hammer backwards until the lever L comes into notch *o* and holds the hammer H in that position. The handle F is now turned down again so as to close up the opening D, a percussion cap is placed upon the nipple N, and the gun is fired by pulling trigger T.

Claim.—1st. The manner of cocking the hammer by the opening of the breech, substantially as described.

2d. The arrangement and construction of the hammer, operated in the manner specified.

3d. Securing the breech-cap E either upon or into the gun-barrel, said breech-cap being provided with a hole corresponding with a hole

in the gun-barrel, by the unscrewing of which breech-cap, the hammer is cocked, and both holes are brought above each other, so as to admit the cartridge, while, by the screwing up of the said breech-cap the hole in the gun-barrel is closed up again, substantially as described.

No. 16,288.—Hermann Schroeder, Lewis Salewski, and William Schmidt.—*Improvement in Breech-Loading Fire-Arms.*—Patented December 23, 1856.

By turning a crank on the shaft E, the pinion D is turned, and meshes in teeth of rack *e*, thereby moving the barrel B from the breech-pin *c* into the position of fig. 2. In this position the charge can be readily inserted into the rear end of the barrel B. The pinion D, in moving, pushes the hammer G into an upright position by the connexion *i* and rod *k l*, and thereby cocks the gun. The barrel B is now returned towards the breech-pin, and the gun is fired by pulling the trigger, the needle *a* piercing the priming and thus firing the charge.

Claim.—The cocking of the hammer, in the act of moving the barrel forward to charge it, by a combination of mechanical parts, substantially as described.

No. 14,147.—Horace Smith and Daniel B. Wesson, assignors to The Volcanic Repeating Arms Company.—*Improved Primers for Cartridges of Fire-Arms.*—Patented January 22, 1856.

The ball being placed in the arm, a blunt projecting piece is pressed through the opening *m* in the case 4, and through the cork 3, until it bears on the fulminating powder *x* and steel disk 2; a blow from a hammer will then ignite the powder *x* and through openings *a* in the disk ignite the powder C in the ball.

The inventors say: We do not claim the steel disk, nor placing the percussion powder on it in the rear of the powder; nor the method of exploding the same, as a patent has already been granted to us for that.

But we *claim* the combination of a copper or brass case, an iron or steel disk with cork, or its equivalent, and fulminating powder, substantially as herein set forth and specified.

No. 15,262.—James N. Ward.—*Improved Magazine Hammer for Fire-Arms.*—Patented July 1, 1856.

The pawl C works on a pin I, fixed in the lock L, over which passes the slot *k* of the hammer P; so that as the hammer is drawn back, the wheels A B are turned in the direction of the arrow. The primer *p* is coiled in the magazine M, and being carried under wheel A is moved forward at each turn of said wheel.

The edge *y* of cone Q, passing close to the face *z* of the hammer,

severs the protruding portion of the primer previous to the explosion, and covers the exit H from the fire.

The inventor says: Disclaiming all other parts of the fire-arm not hereinafter mentioned as being already in use—

I *claim* the feed-wheel A, ratchet B, and pawl C, in combination with each other and the coil-chamber M in the hammer-head, said wheels being so situated relative to the pawl, that the outer face of the feed-wheel shall be within the inner plane of the pawl cavity.

I claim also the combination of the cone Q with the hammer, substantially as specified, for severing the protruding portion of the primer, and closing the primer passage H.

No. 14,319.—John H. B. Latrobe.—*Improvement in Percussion-Locks for Fire-Arms.*—Patented February 26, 1856.

The priming tape *b*, with the caps attached to it, is coiled around the ferrule *a*. Cocking the arm, the hammer under the end of the pusher, which is stationary in the chamber in the hammer, will be driven back just the distance between two caps, which is the same in effect as though the pusher were drawn back that distance; and when the hammer falls, the pusher will, of course, be virtually pushed forward the same distance. If the same part of the pusher is then resting on the back part of a cap, and is retained there by the detent spring, the primer will be pushed forward just the distance between two caps, and the cap under the claw of the detent C will be protruded over the nipple, completing its journey at the instant of the discharge. When the hammer falls, the cutter strikes against arm K, whereby the edge of the cutter is forced past the edge of the nose of the hammer, so as to cut the primer, while at the same time the chamber in the hammer is securely closed by the cutter itself. When the piece is cocked again, the spring of the detent presses the cutter back, and reopens the passage for the next cap; the pusher passes over the cap and takes position behind it, ready, on the trigger being pulled, to push the cap forward. To throw the pusher out of gear, a pin P (figure 3) is inserted within the chamber at (figure 1); this pin is moved backward and forward by a button, with a spring on the outside of the cover. To throw the pusher out of gear, it is moved forward under an inclined plane on the pusher from 1 to 2, raising the latter, which then passes backwards and forwards on the pin P, from 2 to 3, without touching the primer.

Claim.—1st. The hammer chambered to receive the primer, in combination with a pusher B attached to the lock-plate, and protruding the primer as the hammer moves, substantially as described.

2d. Also, the movable cutter D, in combination with the chambered hammer, and operating in combination with the projection on the piece, as described herein, to cut off the cap to be exploded, while at the same time it closes the chamber, and protects the rest of the primer from the fire of the explosion, substantially as herein described.

3d. Also, the claw on the end of the detent, to keep the primer always in place for protrusion.

4th. Also, the movable catch for throwing the pusher out of play, in the manner described, or any other substantially the same, in combination with the pusher.

5th. Also, the ferrule around the boss, in combination with the chambered hammer.

6th. Also, the twisting of the primer between the boss and pusher, to permit of its being bent to suit the form of the hammer, as described.

7th. Also, the arrangement of the parts above described, so as to protrude the primer, while the hammer is falling, instead of while the piece is being cocked.

No. 14,742.—Thomas Smith.—*Improvement in Projectiles for Fire-Arms.*—Patented April 22, 1856.

In firing these balls, a plug *d* is inserted into the spiral cavity at the rear end of the ball, to prevent the charge of powder blowing through the cavity, instead of exerting its force for the firing of the ball.

The inventor says: I do not confine myself to any peculiar shape of spiral; but I *claim* the construction of balls or projectiles for smooth-bore or rifle-bore fire-arms, with a spiral cavity more or less funnel-shaped, passing longitudinally through them, for the purpose of giving them a spinning motion on their long axis in their passage through the air.

No. 14,017.—Benjamin Groomes.—*Improvement in Repeating Fire-Arms.*—Patented January 1, 1856.

This invention refers to repeating fire-arms, in which several cartridges are placed one upon another in a removable chamber, and discharged one after the other. A represents the section of the barrel which receives the number of charges, each corresponding to the cap-tubes *u*; it is inserted into the barrel of the gun, as represented in fig. 1, and the caps are held there on the tubes by means of thin cross-pieces of steel *k*. The hammer or exploding apparatus consists in a shaft of the required number of sides, with one end round, cut with longitudinal and spiral grooves *g g* and *h h* (fig. 2) acting as switches. This shaft is placed, by means of a circular tenon on each end, in two head-blocks, between which it is caused to revolve by means of a stationary guiding spring c^1 (fig. 4). These head-blocks are made to slide in inclined grooves in the side plates y^1 y^1 (fig. 2). The shaft C and pins *l* are caused to strike the steel strips *k k* with sufficient force to explode the caps. The hook *q* on the end of the rod *r* (fig. 5) catches in the hole *p* (fig. 2) of the head-block *o*; the notch d^1 on the rod *r* catches in the slide f^1 (fig. 5) and is held in its place by the retaining spring e^1, which is made in the same shape, and screwed upon the top of slide f^1. The catch d^1 of rod *r* (fig. 5) is thrown from its hold on the slide f^1 by the detaching spring g^1, which is raised to the proper height by the set-trigger *c*, by which means the shaft is released, and is then drawn forcibly back by means of the spiral spring *b* (fig. 2.)

The inventor says: I do not claim the method of loading repeating fire-arms by placing a number of cartridges one upon another in a separate cylindrical chamber; as such has been done before.

Neither do I claim revolving hammers, for exploding in succession the different percussion-caps of repeating fire-arms; as such have been used before, though actuated by means other than I employ.

What I do *claim* as new and of my own invention, and desire to secure by letters patent, is, the mechanism for rotating the hammer during its reciprocating rectilinear movements, or rearward motions, as described, consisting of the spring-dog or stud, the series of straight grooves formed in the hammer-shank, and arranged with respect to each other so that the spring-dog may operate in them, substantially as specified.

No. 14,820.—GEORGE LEONARD.—*Improvement in Repeating Fire-Arms.*
Patented May 6, 1856.

The nature of this invention will be understood from the claims and engravings.

Fig. 1 represents a central, vertical, and longitudinal section.

Fig. 2, a side view, with the side-plate and stock detached, and the chamber turned down from the breech in a position for capping the cones, for cleaning, &c.

The inventor says: 1st. I do not claim the invention of a central screw by which several concentric barrels may be attached to and disconnected from a chamber with a proper number of bores; but I *claim* the invention in fire-arms of an expedient for connecting several concentric barrels to a chamber A having an equal number of bores *b b b b b*, and for partially but not wholly disconnecting the same for the purpose of loading, cleaning, &c., consisting of a combination of a central screw M with a spindle G, having a projecting head and a bore of two different diameters in the centre of the concentric barrels; the front part of the bore being larger than the back part, and of the diameter of the projecting head, and the back part of the bore being smaller than the front part, and of the diameter of the spindle. The whole to be constructed substantially as shown, but independent of any accidental properties.

2d. I do not claim the invention of a revolving hammer for fire-arms of any peculiar construction, or the invention of any device or expedient to regulate its motions; neither do I claim the inventions in fire-arms of several concentric barrels, nor of several concentric barrels having anything special or peculiar in their construction. But I *claim* the invention in fire-arms of a combination of several concentric barrels with a revolving-hammer for their successive discharge, the reciprocating and revolving motions of which hammer are governed and guided by straight and oblique grooves *g g* sunk in its surface, each kind of groove to be equal in number to the barrels. The whole to be constructed substantially as shown, but independent of any accidental properties.

3d. I do not claim the invention in fire-arms of a sear, having a thumb-piece or arm projecting beyond the breech or stock, so that the fire-arm may be uncocked by pressing on said thumb-piece or arm and easing down the hammer. But I *claim* the invention in fire-arms of a combination of a cocking-lever X, trigger V, and sear *s e*, with a thumb-piece *l;* the combination to have such characteristics that the fire-arm can be uncocked without discharge only by pressing said thumb-piece and easing down said cocking-lever. The whole to be constructed substantially as herein described, but independent of any accidental properties.

No. 15,110.—Alexander Hall, assignor to Himself and James G. Caldwell.—*Improvement in Repeating Fire-Arms.*—Patented June 10, 1856.

In the inner periphery of the ring F are a series of recesses *c* corresponding to the number of chambers, and on top of plate G is secured a spring *d*, to which a bolt *e* is attached, so that the upper end of said bolt will take into the series of recesses *c* as the ring F is turned. The lower part of the bolt *e* hangs down in a convenient position to be used.

Claim.—The ring of chambers F, having a single spoke J extending from its inner periphery to its hub K, so that said ring may turn on a centre support, make almost an entire revolution, and pass freely and truly through the mortise E in the breech C, where its chambers are in succession brought opposite or in line with the bore of the gun.

I also claim combining the bolt *e* with the ring of chambers so that it may be detached from its catch, and the ring turned to bring the next chamber in line by the hand which supports the gun, and without changing the hand from its supporting position.

No. 15,388.—C. S. Pettengill.—*Improvement in Repeating Fire-Arms.*—Patented July 22, 1856.

The object of this invention is to enable the operations of rotating the breech and firing to be performed with an arrangement of mechanism operated by a single pull on one trigger, which is accomplished by a combination of parts of the lock by which the hammer is made self-cocking after every fire, and the main-spring E is relieved from all strain while the hammer remains cocked, as will be more readily understood by reference to the claims and illustration.

Claim.—1st. In combination with the arrangement of the main-spring to work on a pivot, so as to be capable of relief from all strain, except at the time of firing, I claim the application to the said spring of a spring F, operating upon it as described, to draw back and effect the cocking of the hammer, substantially as described.

2d. In combination with the arrangement of the main-spring to work on a pivot, as described, I claim the lever H and the cam C^1 on the trigger, operating together and upon the main-spring, substantially as specified, to strain and develop the elasticity of the main-spring by the act of drawing the trigger to fire.

3d. The sear D, as arranged, entirely disconnected from the trigger, and operated upon to set free the tumbler, by means of a cam C^1 on the trigger, substantially as described.

4th. The attachment of the dog, which operates in the ratchet notches *a a* on the cylinder to the same lever H by which the strain is thrown on the main-spring.

5th. The arrangement of the slot *p* in the recoil shield, and the holes *a a* at the end of the ratchet notches on the cylinder; whereby the cylinder is locked, so as to be incapable of rotation in either direction, before the hammer is let off, substantially as set forth.

No. 14,034.—John C. Smith.—*Improvement in Repeating Magazine Fire-Arms.*—Patented January 1, 1856.

The nature of this invention will be understood by reference to the claims and illustration.

The inventor says: I do not claim or confine myself to the exact process of inserting the cartridges into the magazine, or to the exact shape shown of the casing G, or to the number of cartridges or caps contained in their respective reservoirs, as these features may be altered to suit the size and nature of the fire-arm.

Neither do I desire to claim the use of a laterally radiating breech, as such is claimed in the patent of W. W. Hubbel, July 1, 1844. Neither do I wish to claim, exclusively, the combining of the hammers with the laterally swinging chamber for the purpose of effecting the simultaneous opening of the chamber and cocking of the hammer.

But what I *claim*, and desire to secure by letters patent, is, first, the trigger N, with its spring *l*, link P, lever *w*, with its dog Q and projection *v*, the hammer S, with its notch for receiving the dog, its projection *u* and spring T, the lever 4, link L with its spring *m*, lever M, link K, and lever I, or the equivalents to the above, in combination with the vibrating breech C; the whole being constructed and arranged substantially in the manner herein set forth, for the purpose of imparting to the said breech the required lateral vibrating movement, retaining the same when required, and operating the hammer so as to discharge the load by simply operating the trigger only.

2d. The magazine B, containing the cylinder W, with its hollowed flanges and spring-catches 5, in combination with the ratchet teeth on the cross-piece 6, and the ratchet-wheel *e* on the end of a vibrating breech, so that the movements of the latter may cause the said cylinder to carry round in succession the cartridges ready for insertion into the chamber of the breech.

3d. The sliding-rod V, with its rod Z and projection 8, for the purpose of allowing the operator a ready means of inserting the cartridges into the chamber.

4th. The cap reservoir 12, with the cylinder 11 and its orifice for receiving the caps, in combination with the rod 10, arranged substantially as herein shown, for the purpose of readily placing the caps on the nipple of the breech.

No. 14,118.—Eben T. Starr.—*Improvement in Revolving Fire-Arms.*—Patented January 15, 1856.

When the key *d* is turned in the position represented in the drawings, the barrels are held firmly against the breech-plate *c* to confine the charges. The central bore, however, for a short distance from the muzzle, is cut out of a form corresponding with the form of the key *d*; so that when the key is turned to the proper position, the barrels can be pushed forward a sufficient distance for the insertion of the charges.

The two positions of stop *z*, referred to in the last claim, are represented in fig. 3: one by full, and the other by dotted lines.

The inventor says: I do not claim, as my invention, the cartridge-cutters on the breech-plate, nor any of the separate parts of which my improved arm is composed.

But I *claim* mounting the series of barrels *a* on a central, rotating spindle or arbor *b* provided with a breech-plate *c*, so that it can slide thereon, substantially as described, to be moved forward to receive the charges, and then pushed back and locked to inclose the charge, as set forth.

And I also claim the method of elevating the cock by the finger-lever *p* until it is engaged and held by a spring-catch *y*, substantially as described, in combination with the trigger c^1, so arranged that it can be operated by the continued pull of the finger-lever to effect the discharge, substantially as described.

And I also claim, in combination with the finger-lever and trigger, arranged and combined substantially as specified, the employment of the shifting stop *z* on the finger-lever, so that it can be set either to effect the discharge, by the continued back pull on the finger-lever, or by touching the trigger with the finger after the cock has been elevated, as described.

No. 14,420.—William Mt. Storm.—*Improvement in Revolving Fire-Arms.*—Patented March 11, 1856.

Claim.—1st. Extending the "casque" forward as far as the face of the cylinder, and surrounding it to form a receptacle or holder for it while loading, in combination with a hinged apron-piece, fig. 5.

2d. In combination with the so arranged barrel and casque for locking them together, the solid "self-acting" locking spring, (as distinguished from a locking lever, having by necessity a hinge to wear loose, &c.,) said spring being arranged to resist the discharge by its direct tensible strength.

3d. In combination with the casque or cylinder receptacle, the safety screw Q, projecting into the recess between the shoulders *r* r^1, (or, as equivalent, the screw on the cylinder, and the shoulders on the casque,) to prevent the cylinder from getting dropped while loading or capping in action.

4th. The central revolving-shaft, with the button-head *i* forward of the sleeve C, and both projecting within the central cavity of the cylinder beyond the line of its rear and the fire of the cap, in combina-

tion with a revolving wheel, loaded within the stock, enclosed from the fire and smoke, all substantially as specified.

5th. In combin ion with the dog, having an inclined plane or projection at its forw..d end to meet the purpose of such combination, an adjusting trippling screw, whereby, despite of wear, &c., the detachment of the dog from the sear may be effected sooner or later in accordance with the needed distance of revolution of the many-chambered cylinder.

6th. Extending the rear of said dog downward from where it connects to the heel of the hammer, and connecting the pawl directly thereto; by which means the pull on the dog by the trigger directly operates the pawl to push around the cylinder.

7th. I claim extending the pawl beyond where it is connected to the downward extension or heel of the dog, and connecting the main-spring to the part so extended; by which means the pull of the dog on he pawl distends the main-spring, while the latter, being distended, presses the point of the pawl more firmly into the revolving holes or indentations in the face of the revolving wheel, preventing any slip, while revolving the cylinder, and in all points rendering the use of a pawl spring unnecessary.

8th. Pivoting the usually fixed end of the main-spring in the manner explained, so that while stationary it shall not be fixed, but free to compensate for its own vibration and that of the rear of the pawl, thus rendering the use of the usual vibrating or connecting link between the main-spring and the rest of the lock unnecessary, despite the immediate connexion of the main-spring to said pawl.

9th. The locking-notches in the revolving wheel, (6,) or its equivalent, in combination with the crest on the dog, for the purpose of securing the stoppage and locking fast of the cylinder at the proper position for discharge.

10th. In combination with the forward shoulder or detent on the head or sear of the trigger, the screw projection or detent on the rear of the head or sear of said trigger; to the end that, after said forward detent or hook ceases to act by the dog being thrown off to lock the revolving wheel 6, and thereby the cylinder in place, the hammer shall not immediately fall, but be retained on cock to give opportunity for deliberate aim, as explained; said rear projection or detent catching at this point on the downward prolongation of the heel of the hammer for this purpose, the whole being arranged and acting in conjunction.

No. 14,406.—Frederick Newbury.—*Improvement in Revolving Fire-Arms.*—Patented March 11, 1656.

On pressing upon the handle of the hammer in cocking it, the lever V^2 will be pressed into its recess, and thereby the picker V will be thrown forward under the burst caps and lift them off the cone.

Claim.—The combination of the wheel-gearing and pawl with the trigger, by which means the block C is revolved. (The wheel-gearing itself is not claimed.) The priming-cap magazine, in combination with the trigger, to permit the capping of the cone by the trigger. The

spring guard-plate W, to prevent the fire from the upper chamber extending to the lower. The combination of the picker attached to the hammer, substantially as set forth in the above specifications.

No. 14,710.—Gustav A. Blittkowski and Frederick Wm. Hoffmann.—*Improvement in Revolving Fire-Arms.*—Patented April 22, 1856.

The magazine tube C being supplied with fixed ammunition, the muzzle is raised until the cartridges descend, one of which will drop partly into a cavity of the breech A, as at *c* (fig. IV). The toe D must then be pulled back until the gun is full cocked. This produces the following motions, viz: withdrawing the breech until the bevil *a* is clear of the cavity in the nozzle, pressing down the pin *d* to keep back the rest of the cartridges, rotating the breech one-sixth of a revolution, and thereby transferring the chamber *c* to the place of c^1 (fig. VII) and so that it will be opposite to the rammer *b;* also, applying the cap to the nipple of the empty chamber brought opposite the magazine, and, finally, the return of the breech to its first position, and the ramming of the cartridge c^1 by that last named action. As the chamber opposite to the barrel is the fourth from that opposite to the magazine, the cock must be let down and raised that number of times, in the first instance, in order to work the charges around. The top charge may then be fixed as usual.

Claim.—First. Effecting the ramming of the cartridge *c* by means of the fixed rammer *b* in combination with the reciprocating breech-chamber A.

Secondly. The arrangement for holding and releasing the cartridges, consisting of the clamp-spring, the knob d^1 upon the axis of the breech-chamber, or its equivalent, and the magazine C for containing a supply of cartridges.

Thirdly. Effecting the several motions required for operating the rotating breech by means of an axis rigidly connected thereto and operated from one of the ends of the said axis.

Fourthly. The combination of the slide *h* with the axis of the breech-chamber, with the locking bolt *i*, and with the tumbler o^1, or the mechanical equivalents of said parts, for the purpose set forth.

No. 15,397.—Bernard H. Westerhood.—*Improved Trigger-Protector for Fire-Arms.*—Patented July 22, 1856.

This invention relates to an arrangement for preventing the accidental discharge of fire-arms, and consists in a circular guard D encasing the trigger B; which guard is readily locked by bolt *d* falling into the staple *b*, and which can be opened by withdrawing the bolt *d* by means of the button *h*, when the spring *j* will open the guard by turning it on its fulcrum *a*.

Claim.—The employment, in connexion with fire-arms, of a pro-

tector D, which can be locked so as to entirely enclose the trigger, and opened so as to expose the same; the said guard being arranged and constructed substantially in the manner and for the purpose set forth.

No. 14,819.—Edward Lindner.—*Improvement in Breech-Loading Guns.*—Patented May 6, 1856.

When the gun is to be loaded, the part of the lever E projecting through the frame A is pulled back, whereby the breech is unhooked, when the spring D acts upon the projection *a*, forcing the forward end of the breech C upwards ready to receive the cartridge, which, while being pressed in, is opened by the knives *f*, to allow powder to fall towards the priming hole M. The breech is then pressed down, when the lever E, acted upon by its spring *n*, falls back in its place, locking thereby the breech C in its proper position. The lower end of the lever E being connected with the rod F, which latter is again connected with the lever G, the longer arm of the same, with the inclined surface *m*, is brought by this action into the gun-barrel B, when the gun is ready to be discharged. By the firing off, the ball in its passage comes in contact with the inclined surface *m* of the lever G, and presses the same outward, communicating thereby a corresponding motion to the rod F and lever E, by which the latter is pulled away from the breech C; at the same time the recess *q* in the rod F comes in contact with the projection *p* on the breech C, giving the same a start, and the spring D acts upon the breech C, throwing the forward end upwards ready to receive a new cartridge.

Claim.—1st. The application of a lever projecting partly into the gun-barrel, or of a piston forming part of the barrel, in such a manner that the passage of the ball through the gun-barrel, or the explosive power of the powder, shall act upon the same, pressing the same outwards for the purpose of communicating motion to a rod situated below the gun-barrel.

2d. I claim the manner of disengaging and opening the breech, by a motion obtained either by the passage of the cartridge through the gun-barrel, or by the action of the expansive power of the powder when the gun is fired off.

3d. I claim the box H, containing asbestos, or its equivalent, for the purpose of cleaning the rubbing surface of the breech in its motion upwards.

4th. I claim the arrangement of packing the axis of the breech against the face of the gun-nipple frame, in the manner and for the purpose specified.

5th. I claim the arrangement of the vent or priming hole from the gun-nipple to the cartridge chamber in the breech, in the manner as described.

6th. Filling the space in the recess O with asbestos, or its equivalent substantially as described and for the purpose specified.

No. 16,072.—Christian Sharps.—*Improvement in Breech-Loading Guns.*—Patented November 11, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—I am aware that the breech of a fire-arm has heretofore been closed by a plug breech-pin, connected therewith by a bayonet attachment, and that bevelled or spoon-formed piercers have been used to pierce cartridges. I am also aware that a bush has been used in that part of the breech which is liable to burn by continued use. I therefore lay no claim to the invention of such devices of themselves.

But I *claim* the combination and arrangement of a spoon-formed cartridge-piercer *d* with the turning breech-pin of a breech-loading fire-arm, whereby the powder is more effectually worked into the channel leading to the primer, by the operation of locking the breech-pin in its place.

I also claim the combination of the removable bush *o* and elastic packing ring *a* with the breech of a fire-arm, substantially as herein set forth.

No. 15,244.—John Laurens.—*Improved Gun-Carriage.*—Patented July 1, 1856.

To get the gun ready for action, crow-bars are applied to spindle A, and the carriage-bed is caused to move backwards. The end of the iron bar is then bolted, and the braces C C are hooked on; the wheels from the side-axle are removed and placed on the fore and aft axles D D. When the gun is loaded, the spindle is allowed to fall clear of contact with the cogs, which prevents the possibility of breaking their teeth.

In its recoil the gun slides along the bed until checked at F by a rise in the after part of the bed, and also by a fall in a slide, preventing the possibility of the gun getting loose, and doing away with the breeching now in use.

Claim.—The entire gun-carriage, it being totally different from any gun-carriage that is now or ever has been in use, with the sole exception of its carrying a gun.

No. 14,488.—Gustav Adolph Blittkowski and Frederick William Hoffman.—*Improvement in Needle-Guns.*—Patented March 25, 1856.

The inside faces of the clutch o^2 are so bevelled that in the act of giving the blow the lower edges will pass over the head of the knob o^1 and embrace its shank. As the hammer is drawn back the needle is pulled back also. The arc described by the hammer finally separates the two.

When the hammer-head o^2 strikes the stock i^1 the needle passes through the tube *o*, and the shoulder at the stock propels the said tube *o* along until its opposite end strikes the breech-chamber, which closes

around the touch-hole, the shoulder forming a stopper for one end and the back end of the breech the other.

The inventors say: We make no claim herein to the method of withdrawing and rotating the cylinder A, inasmuch as that is embraced substantially in another application submitted by us; but we *claim*—

1st. The method of withdrawing the needle by a positive force applied thereto by means of the knob o^1 upon the end of the needle-stock i^1, in combination with the claw o^2 upon the end of the hammer, so arranged that, becoming engaged at the moment of giving the blow, it shall cause the withdrawal of the needle in the operation of cocking, as described.

2d. The guide-tube *o*, for the double purpose of guiding the needle and of acting as a stop around the touch-hole, as described.

No. 14,597.—George Buckel and Edward Dorsch.—*Improvement in Shot-Guns.*—Patented April 8, 1856.

This invention consists in dividing the length of the bore into an odd number of parts and making them alternately of larger and smaller diameter, for the purpose of preventing the shot scattering too much.

The inventors say: We do not confine ourselves to any particular number of divisions of the bore; but we *claim* giving the bore the undulating form, substantially as herein described.

No. 14,513.—Edwin P. Monroe.—*Improvement in Gun-Locks.*—Patented March 25, 1856.

This improvement is applicable to that kind of gun-lock in which the hammer is actuated by a coiled wire-spring; and the invention consists in supporting the spring D at each end upon pins *i* and *m*—the one projecting from the face-plate B, and the other from the tumbler E—whereby the spring is prevented from rubbing upon its arbor.

Claim.—The pins *i* and *m*, in combination with the coiled spring D, operating in the manner substantially as herein set forth.

No. 15,682.—G. W. Bishup.—*Improvement in Breech-Loading Ordnance.*—Patented September 9, 1856.

This invention consists in providing the breech-pin B with a number of expanding segments E, which are operated by a screw *i* and toggle-joints *f*, and which can be drawn into the recess *c b* round the pin, to allow the pin B to be inserted or removed from the gun; and after the insertion of the pin in the gun, to be expanded or spread out laterally into a groove around the seat which receives the pin, so as to form stays to act between the pin and the solid metal of the extension breech for the prevention of the driving out of the pin when the explosion of the charge of the piece takes place.

The inventor says: I do not confine myself to the particular form of the groove *b c*, or of the segments.

But I *claim* the combination of the groove *b c*, made around the seat of the breech-pin, and the segments E E attached to the breech-pin; the said segments being operated by a screw and toggle movement, or other equivalent means of spreading or expanding them into the said groove, or withdrawing them therefrom, substantially as described.

No. 15,063.—James Chattaway.—*Improved Water-Proof Percussion Caps.*—Patented June 10, 1856.

The nature of this invention consists in placing a piece of metal over the powder in each cap, and then placing upon said piece of metal a piece of alloy or solder compound of bismuth, lead, and tin, which will fuse at a given heat, (insufficient to explode the powder,) by which fusion a complete soldering of the edges of the piece of metal covering the powder is effected to the sides of the caps, rendering them entirely impervious to water, damp, or any change of weather.

Claim.—The application to percussion-caps of a fusible alloy which will melt without exploding the powder, using for that purpose the aforesaid metallic compound, or any other substantially the same, and which will produce the intended effect.

No. 15,370.—James Chattaway.—*Improvement in Percussion Tape-Primers.*—Patented July 22, 1856.

The fulminating powder is placed in the indentations of a piece of metal, prepared with a coating of soft solder; then another piece of metal, prepared in the same way with a coating of solder, is laid on the former; and both are submitted to the pressure of steam-heated rollers, which will effect a permanent union by soldering.

Claim.—The improvement of substituting for paper metal hermetically sealed, and soldering the continuous band, so as to make it impervious to water, weather, or climate.

No. 14,315.—Chas. T. James.—*Improvement in Projectiles.*—Patented February 26, 1856.

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. The combination of a band B of fibrous packing around a cannon-ball, with a means of distending it into the scores of rifles of the cannon, (without enlarging the shot itself, as is done where it is wholly or partially formed of flexible metal,) by the pressure of the explosive gas, substantially as herein described.

2d. The combination of a mandrel *b* passing through the shot, for the purpose of driving out the pins *c c*, with a nut *n* for drawing it in, substantially as herein described.

3d. The combination of a mandrel entering the shot, with a ratchet *r*, or equivalent catch, for holding it in its place, substantially as described.

4th. The combination of any pliable packing-ring surrounding the shot, with the openings *a* communicating between its inner surface and the chamber where the explosive gas is generated, for the purpose of communicating the power to distend such packing, substantially as herein described.

No. 15,577.—Nathan Scholfield.—*Improvement in Projectiles.*—Patented August 19, 1856.

The nature of this invention will be understood by reference to the claims and engravings.

Claim.—The application of wings, as described, either with slight springs to force them from close contact with their seats, when left free, so as to allow the air to act thereon, to perfect their expansion, or by having a free passage for air beneath the wings, and giving them a slight inclination diagonally, on the cylindric surface, and without springs.

Also, the construction of the guiding-wings for a projectile to be fired from a gun, of thin sheets of metal, having one of their edges folded around a piece of wire, or its equivalent, to form journals on which the wings may turn as joints.

Also, applying these wings, either plane or curved, on the cylindric surface of a projectile, and either parallel to its axis or diagonally in such form and position that the said wings may be closed down on the cylindric surface or on grooves thereon, fitted to receive them, and by the action mainly of the air on the wings as the projectile is discharged, they shall be opened and expanded, as described.

Also, the construction and application of these wings slightly curved, composed of metal possessing elasticity to resume their curved form after being changed therefrom, so that, if, while its rear end rests on its seat, the forward end of the wing is elevated therefrom when free, then if this end is also pressed down to its seat, it shall be raised again by its elasticity when left free from pressure, so that the action of the air on the exposed curve of the wings will force them open to their greatest capacity after being discharged from a gun.

No. 16,076.—William Taggart.—*Improved Projectile for Fire-Arms.*—Patented November 11, 1856.

The hollow projectile A is provided on its inner circumference with a spiral partition C, and the wings *a* are situated at right-angles to the rear end of the spiral partition, to increase the revolving motion given to the ball by the spiral partition C.

The inventor says: I do not claim the central aperture, nor communicating a revolving motion to the ball by spiral ridges or projections on the inner surface around such an aperture.

But I *claim* the spiral partition C, arranged and operating substantially as specified.

I also claim the wings *a a*, arranged in the manner and for the purpose described.

No. 15,999.—John B. Read.—*Improved Projectile for Ordnance.*—Patented October 28, 1856.

The nature of this invention consists in the attachment to the butt of an elongated cannon-shell of a cupped-cylinder B of wrought-iron, fastened to the body of the shell by having its perforated bottom imbedded in the cast-iron metal of which the shot may be composed, while its sides H project beyond, and are so thinned down as to be capable of such expansion by the charge of the gun on firing as to fit its bore exactly, thus imparting rotary motion to projectiles when rifle grooves are employed, securing, by the striking of the projectile upon its apex, the advantage of using percussion-shells.

Claim.—The attachment to elongated shot or shells of a cylinder of wrought iron fastened to the body of the shot or shell, by having its bottom or sides more or less imbedded in the cast metal, of which the shot may be composed; the cylinder to be attached to the butt of the shot or shell, and its sides to project beyond, being thinned down, after a short bevel, to such a degree as exactly to fit the bore of the gun when the charge is fired, so as to save windage in all cases, and impart rotation when rifle grooves are employed.

No. 15,454.—Ethan Allen.—*Improvement in Moulds for Hollow Projectiles.*—Patented July 29, 1856.

On holding the mould by the handles A it can be filled, and then by turning the handle J it cuts off the spru L even with the surface of the ball. The screw form of the rings D prevents the ball from turning; by opening the handles A the pins move the piece E with the core over the sprue, carrying the ball with it free from both sides, and allowing it to drop.

The inventor says: I do not claim any particular form or arrangement of parts.

But I *claim* cutting off the sprue by means of a cutter working on the curve of the inner surface of the ball, so as to leave the ball smooth and symmetrical, substantially in the manner and for the purpose set forth.

No. 14,460.—John Lippincott.—*Improvement in Percussion Projectiles.*—Patented March 18, 1856.

It is the object of the spring *s* to prevent any recoil of the piston *h*. The concussion will drive the nose-piece *m* down, and with it the piston *h*, which will strike the percussion-wafer or explosive powder *g*, and explode the shell.

Claim.—The combination of the cylindrical chamber *g*, piston *h*, spiral spring *s*, cap *f*, and nose-piece *m*, constructed and arranged as

described, forming an improved percussion apparatus to be inserted into the powder-chamber *c* of bomb-shells, either in combination with or without a shallow sabot of lead *b*, of the shape described; the whole being constructed and arranged substantially in the manner and for the purposes herein before set forth.

No. 15,529.—A. B. Smith and William Weaver.—*Impro ed Machine for Throwing Projectiles.*—Patented August 12, 1856.

The projectiles are fed into the machine through the hopper *t*, and pass down into the spiral tube E, where, by means of the centrifugal power imparted to them by disk B revolving rapidly within ring A, they are thrown towards the periphery, and discharged through the muzzle D. By means of the valve *o*, spring *n*, lever H, cam L, and lever *m*, the ball can be made to reach the periphery of the ring A at any desired point.

Claim.—We claim the conformation of the ring which encloses the revolving disk with a movable muzzle, in the manner and for the purpose specified.

We also claim the spiral tube E for gradually communicating the motion of the disk to the balls when its outer end is turned radially (or thereabout) outward, and is provided with a valve in said radial portion, substantially in the manner and for the purposes set forth.

We also claim the mode of opening the valve *o*, substantially as described, whereby the balls are invariably brought to the ring A at a given point, and that point changeable at pleasure, irrespective of the position of the ring relative to its disk, or of the point to which it may chance to be directed.

We also claim the employment of the cam *j*, in the manner and for the purpose described.

No. 15,425.—Ralph Henry Isham.—*Improved Mode of "Patching" Rifle-Shot.*—Patented July 29, 1856.

The nature of this invention consists in coating or plating leaden balls with brass, to prevent the rifle-barrel from leading or filling, as is the case when leaden balls are used without patching.

Claim.—The use of a leaden ball or bullet of any desirable form, with a metallic case or coating of brass or other firm metal, in whole or in part, whether plated, washed, or galvanized, or by whatever mechanical device the coating or partial coating may be effected for the use and objects of this invention, as set forth.

No. 14,503.—William W. Hubbell.—*Improvement in Explosive Shells.*—Patented March 25, 1856.

The peculiar construction and distribution of the masses of this shell insures a rotary motion, combined with great explosive force and destructive effect.

I do not claim spirally-winged elongated shells, nor elongated shells with cylindrical body and spherical hinder part, either with or without

tails or wings behind, nor with elongated head; for I am aware that they have been long known, and I have, many years ago, experimented with them.

But I *claim* combining or forming a series of oblique or propeller surfaces D D D D uniformly around the fuze hole *c*, on the extreme front face of the metal of an enlarged or thickened head of an elongated shell, with cylindrical body and smooth semi-spherical hinder part, substantially as described.

No. 15,760.—A. M. George.—*Improved Explosive Shell.*—Patented September 23, 1856.

The chamber E contains the charge of powder, the chamber *b b c*, contains non-conducting material, and the chamber D is filled with melted metal, and closed by means of plug *e*; the shell is fired in the common way, and lighted by means of fuse *d;* and when the charge in the chamber E becomes ignited, said chamber and the shell explode at once, and the melted metal is scattered about.

Claim.—The described arrangement and combination of the chambers D E and *b b c*, to constitute a new projectile for the scattering of melted metal or other incendiary substances.

No. 14,133.—William W. Hubbell.—*Improvement in Eccentric Explosive Shells.*—Patented January 22, 1856.

The object of this improvement is to compel the fuse to be uniformly foremost in the flight of the shell.

The inventor says: I am aware that shells having ecentric hollows and reinforcements around the fuse hole have been used before my invention, but in different arrangement of the metal and with different effects from those discovered by me, and I do not claim such arrangements of metal nor their effects.

But I *claim* the combination of the head or segment of the solid sphere with flat base, uniformly around the fuse hole, with the segment of the hollow part forming a spherical shell with flat based heads, and externally smooth, as described.

No 15,075.—William W. Hubbell.—*Improved Sabot for Rotating Shot and Shell.*—Patented June 10, 1856.

The arrows *x y* indicate the directions of the forces of rotation and projection, both attained by the sudden pressure of the power of the cartridge or the oblique faces *l l l l* and *m m m m* of the sabot, and the friction caused by the pressure of the solid bowl against the surface of the shell A, with the relief of the friction of the shot on the under side of the bore, by the gas which passes between the body *i i* of the sabot and bottom q^2 of the bore, as indicated by the arrow *n*, against the lower curved surface *d* of the shot.

Claim.—The construction of wooden sabots, substantially as de-

scribed, adapted to relieve the friction of and easily rotate the smooth spherical shot or shell of the common diameter, consequent weight, form, and extent of windage, and bearing of its weight on the bore, out of its usual size of smooth-bored canon under the conditions as described.

No. 14,151.—Joseph T. Capewell.—*Improvement in Shot Pouches.*—Patented January 29, 1856.

K represents the cut-off having its vertical edges turned over in order to prevent it from slipping sideways when at its lowest point after the charger has been withdrawn.

In figure 4, T represents the tool used in fastening the ring R to tube A. The operation of the tool will be understood from said figure 4.

The inventor says: I do not claim the construction of the charger D (figure 3) as new; neither do I claim the main tubes as shown at A, (figure 1 and figure 2,) nor yet the small tube *a*. I do not claim the ring C (figure 1) nor the spiral spring *s*.

I *claim* my improvement in the construction of a cut-off having the lower edge or bottom straight; also having the vertical edges turned up or over, for the purpose substantially as described at figure 2, letter K.

I also claim the mode of fastening the rings around the main tube or throat of the shot pouch, in the manner as substantially described and shown at figure 4.

No. 15,651.—John M. Hathaway.—*Improvement in Chargers for Shot Pouches.*—Patented September 2, 1856.

The charge to be used is separated from the shot in the pouch by means of the slide F, into which a piece *m*, provided with holes *n*, is inserted, and said piece *m* is pressed by means of spring *o* against pin *x*, which latter is thus inserted into one of the holes *n*, which thus locks the slide against accidental opening. In operating this pouch the lever *s* is pressed upwards, and the spring *o* is thus pressed down and the slide *f* is unlocked; then by pressing on the piece F the slide *m* separates the charge from the shot in the pouch, and at the same time the slide *h* is opened for the discharge of the charge. By releasing the piece F, the spring *t* will throw back the slides into the former position, and the slide *f* is locked again as before. The inner tube C, which fits loosely on the outer tube D, is provided with a button 9 and tongue 7, which can be made to slide in the groove 1, and adjusted and fixed in the grooves 2 3 4, &c., so as to adjust the tubes for the reception of smaller or larger charges, said tongue and button being kept stationary by a spring *i* attached to the inner side of cylinder C.

Claim.—In combination with the slide of a shot-charger a locking apparatus, substantially such as described, to prevent the accidental opening of the charger, but readily unlocked by the user, as set forth.

Also, the slots 1 2 3 4, &c., on the tube B, and the tongue-button and spring on the tube C, in combination, as a device for adjusting and holding said tubes, as set forth.

XX.—SURGICAL INSTRUMENTS.

No. 15,626.—Loyall Tillotson.—*Improvement in Cupping.*—Patented August 2 1856.

A metal wire G is attached to the cup F of a cupping instrument, to the end of which wire is fastened a plate H, the other end passing through a hermetically sealed aperture, and terminating in a loop I, to which the connecting wire of the battery is to be fastened. The wire G is coiled for the purpose of allowing it to be extended or contracted so that the plate or pole H can be placed on or over the diseased part, consistent with the kind of force employed.

The inventor says: I wish to be distinctly understood as not claiming the use of a cupping instrument, nor the employment of electricity for the reduction of disease in the human body, separately considered, the use of both, singly, having been long known to the medical profession.

But I *claim* the within described apparatus, viz: the spiral wire G, disk H, and loop I, combined and attached to a cupping instrument, for the purpose of employing electricity in conjunction with cupping as an adjuvant for diseased parts of the human body, as set forth.

No. 15,568.—Sherman McLean.—*Improvement in Cupping Instruments.*—Patented August 19, 1856.

The nature of this invention consists in having the cup B of the implement formed of a series of concentric chambers, one of which is represented at D in the illustration, said cups being placed one within the other, and having perforated sides, so that a good bearing surface is obtained for the cup, which is consequently prevented from being pressed into the body by the pressure of the atmosphere.

Claim.—Constructing the cup B, with one or more smaller cups D fitted and secured within it, and provided with perforated sides, substantially as described.

No. 14,739.—L. D. Sibley.—*Improvement in Rings to Prevent Nocturnal Emissions.*—Patented April 22, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—The combination of an elastic strip or strips *m* with an internally toothed ring A in such a manner that the strip or strips shall serve as a protection against the teeth until the distension of the penis takes place, when it or they will yield to said distension, and allow the teeth of the ring to act.

I also claim forming the notches in the edge of the slide *n* in combination with the spring-catch *o*.

No. 15,215.—Hazen J. Batchelder.—*Improvement in Dental Forceps.*—Patented July 1, 1856.

The inventor says: I do not claim the application of a rest or bearer to a pair of dental forceps whereby they may be supported on any part of the jaw or teeth adjacent to a tooth to be extracted. Nor do I claim combining the forceps with the fulcrum slide or plate by a universal joint. Nor do I claim combining with the fulcrum or bearer the handle or lever by which the said fulcrum may be maintained in place.

But I *claim* applying or connecting the forceps A and the bearer B by a stirrup *h* and slot irrespective of the universal joint, or the equivalent therefor, so that the distance between the extreme end of the bearer and the points or ends of the jaws of the forceps may be adjusted, or, in other words, either increased or diminished as circumstances may require.

No. 15,730.—John G. Coates.—*Improvement in Dentists' Forceps.*—Patented September 16, 1856.

The nature of this invention consists in using removable and revolving beaks *c*, to be inserted into the dental forceps, so as to be adapted to any formation of teeth and to grasp said teeth with a uniform bearing during the process of extracting.

Claim.—Constructing forceps with rotating beaks, to adapt themselves to the exterior formation of the tooth, substantially as and for the purpose specified.

No. 14,085.—Joseph Cheever.—*Improvement in Apparatus for curing Varicocele, Sterility, Impotency, and other diseases of the Genital Organs.*—Patented January 15, 1856.

The chain T is attached to the plate in the back pad S, and from thence it is carried through the hollow belt A; near the buckle U, it is carried through the side of the belt and into strap V; thence down through the hollow strap, through the side of the strap at the lower end and over the outside of the scrotum bag C. The chain is then carried through the bag and fastened to one of the series of plates *x*, which are connected together by smaller chains. The plate in the pad S and the series of plates in the scrotum bag are of positive and negative metal respectively.

The inventor says: I am aware that there is nothing new in the application of galvanic electricity for the cure of diseases, and that electro-positive and electro-negative metals have been applied in pads, and in various ways, to diseased parts of the human system; I, therefore, do not claim such, nor do I claim making a scrotum sack of net-work. But I *claim* combining the electric plates of an elastic scrotum sack by chains, or such a series of electrical conductors, extending from one to the other as described, as will permit the necessary expansion or contraction of the sack to take place without obstruction therefrom.

I also claim extending the connecting-chain of the positive and nega-

tive plates into and throughout one of the straps of the scrotum sack, and thence into and through the body-belt, substantially in manner and so as to protect said chain from injury, as herein before specified.

No. 15,372.—JOHN S. DRAKE.—*Improvement in Artificial Hands and Arms.*—Patented July 22, 1856.

3 represents a ratchet-wheel on the part *c* at the joint *i* with a pawl 4 and spring 5, which will hold the fore-arm at any desired angle relatively with the stump; and when said fore-arm is to be dropped, so as to hang down, the back of the pawl 4 is pressed on, disengaging it from the ratchet 3. The whalebone ribs *d* extend from the straps *c* to the circularly formed wrist *e*, which receives the wrist-piece *f*, which, by means of the mortises 7 and rivets 6, can be turned to a limited extent. By pressing on the outside covering of the hand, the pawl *m*, which may be also applied to any joint of the hand, can be adjusted so as to keep the joints in any desired position, or to disengage the pawl from the ratchet 13. The fingers can be turned freely towards the palm of the hand, and will be held there by means of their respective ratchets and pawls. By pulling out the button *s*, the cross bar *p* is driven up and overruns the rods *t*, which will bring the fingers back to their distended position.

Claim.—I *claim* the ratchet 3 and pawl 4, in the elbow joint, to sustain the fore-arm at the proper position relatively with the stump, substantially as specified.

I also claim the construction of the wrist joint *f*, with the slots and stops for allowing the necessary motion, substantially as specified.

I also claim forming the knuckle-joints and joints between the different parts of the fingers and thumb with ratchets and pawls, so as to secure said joints at the point to which they may be moved in adjusting the fingers or thumb to any given article or purpose, substantially as specified.

I also claim disengaging the pawls *n* and *o* from their respective ratchets by means of the sliding cross-bar *p*, (actuated by competent power,) rods *t*, and cam pieces 20, substantially as specified.

I also claim the arrangement of the bars *p* and *q*, crank *r*, button and rod *s*, for actuating the bar *p* and rods *t*, substantially as specified.

And, in connexion with this arrangement, I also claim the cross lever 22, for actuating the bar and pawl *u* of the thumb, substantially as specified.

No. 15,831.—O. D. WILCOX.—*Improvement in Artificial Legs.*—Patented September 30, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The employment o the pulley P, at the knee-joint, as a common centre of motion of the elastic cords M M^1 and N N^1, as

described, for the purpose of producing a natural movement of the artificial limb, in the manner set forth.

I also claim the employment of the sack O, whether used in this limb or any other.

No. 14,836.—William Selpho.—*Improvement in the Construction of Artificial Legs.*—Patented May 6, 1856.

The nature of this invention consists in so forming the joint at the knee that there is no liability to move sidewise, but at the same time the limb is free to move in the natural manner. A similar joint is used for the ankle, but applied in connexion with an India-rubber cushion, which allows the foot to accommodate itself to any irregularities of the surface on which it rests.

The inventor says: I do not claim a ball and socket joint, as these have been used, but the same are liable to motion and wear sidewise; neither do I claim two knuckle or strap joints, as these have been used, one on each side of the knee or ankle joints, but these are objectionable on account of the small bearing surface; neither do I claim springs for throwing the toes of the foot up; neither do I claim spring toes in themselves, as they have heretofore been jointed on to the foot and kept in place by metallic springs. But I *claim* the semi-cylindrical joint *b*, fitted with the pipe 2 and pin 3, to connect said joint together, and give facility for lubricating the same.

I also claim, in combination with said semi-cylindrical joint, the elastic cushion 6, at the ankle joint, for the purpose specified.

I also claim the elastic cushions 9 and 10, on the upper part of the heel and lower part of the limb *c*, to act in the manner and for the purpose specified.

I also claim attaching artificial toes of India-rubber to the wooden part of the foot, to act in the manner and for the purposes specified.

No. 14,293.—F. Roesler.—*Improvement in the Construction of Pessaries.*—Patented February 19, 1856.

Figs. 3 and 4 are drawn on a smaller scale than figs. 1 and 2.

Claim.—An instrument composed of a ring A and two supporting pieces B B, hinged thereto by spring stop hinges, either with or without a front or back supporting piece A.

Also, fitting the supporting pieces A A to their hinge with a pin *f* and socket *g*, or the equivalent thereof, to allow of one or both of the supporting pieces being set oblique to the ring or extended lengthwise.

No. 14,161.—Noah W. Kumler.—*Improvement in Pill-Making Machines.*—Patented January 29, 1856.

The pill material 24 is placed in the opening 26 upon belt 2, whence it is rolled and carried along by apron 2 between plates 4 and 7, and

down between plates 5 and 8, and discharged between the grooved roller 12 and segmental plate 14, where it is cut into proper sized pieces and rolled into balls.

Claim.—The combination of the adjustable plates 7 and 8, apron 2, pulley 1, and drum 3, and these in combination with the grooved roller 12 and segmental plate 14, all substantially as and for the purposes set forth.

No. 16,066.—Edwin M. Murphy.—*Medical Respirator.*—Patented November 11, 1856.

In using this inhaler the medicine is first reduced to a powder and introduced through the opening B; then by introducing the mouth-piece E into the mouth, closing the lips, placing the thumb over the opening B, and inhaling the air through the opening C, the fan A is revolved, which fans up the powder in a cloud, which is thus inhaled directly into the lungs.

Claim.—The combination with the usual medical inhaler of a fan A, to be revolved by the act of inhalation, in the manner and for the purposes substantially as specified.

No. 14,853.—John Clough and Daniel M. Cummings.—*Improvement in Surgical Splints.*—Patented May 13, 1856.

The nature of this invention will be understood from the claims and the engravings.

Fig. 2 represents a view of the splint as applied for a fracture of the limb below the knee.

Fig. 3 represents a view of the splint as applied to the limb for a fracture or dislocation of the thigh.

Claim.—1st. The bed composed of strips of cotton cloth $h\ h^1\ h^2$, &c., or other suitable material passing through the slots $i\ i^3\ i\ i^4\ i\ i^5$, &c., in the leg side-pieces A A^1.

2d. The foot frame and bed composed of the oblique standards I I^1, the bone P, and the strips of cloth $h\ h$ or other suitable material passing through the slots $i\ i^1\ i^1\ i^1$, attached to and adjustable upon the leg side-pieces A A^1.

3d. The device for extending the leg by the employment of the lower extension screws $e\ e^1$, the traversing nuts $j\ j^1$, and their guides $k\ k^1$ with their connecting straps $x^1\ x^2\ x^3$, in combination with the cross-bars J and K, the leg side pieces A A^1, the femur side-pieces F F^1, the femur splint E, the cushions G and H, the bolster L, the bandages V and O, with their connecting straps and the brass straps V V^1.

4th. The device for extending the thigh by the employment of the upper extension screws $r\ r^1$ in combination with the femur side pieces F F^1, the leg side-pieces A A^1, the femur splint B, the cushions G and H, the bolster L, the bandages Y and O, with their connecting straps, and the brass straps V V^1.

5th. The device for flexing and extending the limb by the employ-

ment of the elevating screw *c* and its supports *y* y^1, in combination with the cross-bar M, the leg side-pieces A A^1, the femur side-pieces F F^1, the supports *m* m^1 and *o* o^1, the braces *t* t^1, the elongating arbor T, the concave flooring N, and the bed pieces B C and D.

6th. The elongating arbor T.

7th. The device for spreading and contracting the splint by the employment of the elongated tenon *d* passing through corresponding mortises in the lower ends of the bed-pieces B C and D, the double elongated tenons *j j j* j^1, firmly fixed in the upper ends of the bed-pieces B and D, and passing through a corresponding mortise in the upper end of the bed-piece C, and the confining pin *k k* in combination with the bed-pieces B C and D, the supports *m* m^1 and *o* o^1, the braces *t* t^1, the elongating arbor T, the femur side-pieces F F^1, the leg side-pieces A A^1, and the cross-bars J and K.

No. 15,504.—James T. Alston.—*Improvement in Invalid-Supporters.*—Patented August 12, 1856.

The principal features of this invention will be understood by reference to the claims and illustrations. The supporter can be used to support the invalid when in bed. The invalid is placed between the sides *d* of the frame, and is supported by the cushioned back *g* and the arms *a a*. When the flaps *c c* are combined with each other, they form a seat for the invalid to sit upon when the supporter is placed upon the floor.

Claim.—Hinging the cushioned back thereof to the central connecting cross-piece *k* of its base-frame, when the side pieces of said frame, in front of said cross-piece, are left open for the reception between them of an invalid to receive the benefit of the back and arms of said supporter, substantially as set forth.

I also claim connecting the arms *a a* to the base-frame of the supporter in such a manner that either of said arms can be readily detached from said frame, and be confined therewith again, when the said base-frame is left open in front, and is combined with the back of the supporter, substantially as set forth.

I also claim combining the recessed flaps *o o* with the arms *a a* of my improved invalid's supporter, when the said arms are arranged in conjunction with the base-frame and the back of the supporter, substantially as set forth.

No. 14,524.—John Stull.—*Improvement in Syringe Bottles for Medicinal Agents.*—Patented March 25, 1856.

A represents the bottle, and B the syringe. The metallic band C is fitted around the neck *d*. The inner side of this band has a screw cut into it in order to receive the cap *f* of the syringe.

Fig. 2 shows the manner of adapting the syringe to a common bottle. *h* is a cork which serves as a substitute for the ring C.

The inventor says: I do not confine my claim to either of the parti-

cular modes described of constructing the apparatus; but I *claim* the combination and arrangement of a syringe and bottle, so that the latter shall serve as a protraction case for the former, as well as a receptacle for the medicament to be used thereby, substantially as described.

No. 15,966.—Isaac B. Branch.—*Apparatus for Applying Freezing Mixtures to the Teeth.*—Patented October 28, 1856.

The freezing mixture, which is contained in the receptacle B, imparts a low temperature to the cover *f*, which is made of India rubber, or other conducting material, and the cold surface thereof is applied to that part of the body which is to be operated upon, thus producing insensibility to pain in said part; the spiral spring *g* and follower *h* serving to bring the solid parts of the freezing mixture in contact with the conducting cover *f*.

Claim.—The employment in instruments for applying cold as an anæsthetic of the lip or lips described, substantially as and for the purpose set forth.

Also, the combination with said instrument or the application thereto of the spiral spring *g* and follower *h*, or of their equivalent, substantially as and for the purpose set forth.

No. 15,139.—Samuel Mallett and Augustus B. Smith.—*Improvement in Adjustable Punches for Setting Artificial Teeth.*—Patented June 17, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The combination of two punches, one immovable, the other (fig. 2) movable in the slot *c*, with a spring *d*, and the two cavities, one *e* in the plug or immovable punch, and the other e^1 movable with the movable punch, the latter to be set by the insertion of the wires of the teeth into said cavities, in order to make the distance between the holes in the plate correspond with the distance of the pins in the tooth.

No. 14,924.—William G. Oliver and Thomas Harrison.—*Improvement in Devices for Setting Artificial Teeth.*—Patented May 20, 1856.

The nature of this invention will be understood from the claims and the engravings.

Claim.—Making the teeth with grooves in their cheeks, and attaching them to the plate by fusible metal cast into said grooves.

We also claim making the plate and attaching the teeth at one operation by casting.

No. 15,965.—Hazen J. Batchelder.—*Tooth Extractor.*—Patented October 28, 1856.

When the jaws *a* embrace the tooth, the operator has only to apply his left hand to the arms *b*, so as to close the jaws *a* firmly upon the

tooth, the spring bolts *h* serving to maintain the grasp of the jaws upon the tooth. The fastening of the instrument having been thus effected, the operator is enabled to use it as a turn-key, while the handle C is held in his right hand.

Claim.—The described improved dental instrument or combination of forceps, the latching mechanism, the supporting shank, and handle, applied and arranged together, substantially as specified.

No. 15,706.—John L. Newell.—*Improvement in Casting Artificial Tooth Plates by the Electrotype Process.*—Patented September 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I do not claim the electrotype art of depositing metals into casts or moulds; neither do I claim the making of the cast or mould; but I *claim* constructing the linings in one piece, and simultaneously with the plate, by the electrotype process, as set forth.

Also, filling the interstices of artificial teeth, when attached to a metallic plate, with a metallic precipitate solidified, in the manner described and for the purpose specified.

No. 14,440.—John Broiles.—*Improvement in Hernial Trusses.*—Patented March 18, 1856.

The claim and engraving fully explain the nature of this invention.

Claim.—The peculiar adaptation of the steel ribbon to the body of the patient, by making its lower edge flared out, the block or circle end flared out on its upper edge for about two inches, the strap end slightly curved upwards, and the block end curved downward and outwards on its upper edge, in combination with a pear-shaped pad A, having a slice taken off, commencing at the outer edge of the base and continued to about two thirds its length towards the seam, thus forming a broad plane surface to be applied to the body of the patient.

No. 16,292.—Sylvester J. Sherman.—*Improvement in Truss Pads.*—Patented December 23, 1856.

The spherical ball G is firmly attached to strap A, and placed between the two plates H and I; the screw *b* serves to hold the two plates together, while they can be drawn together by means of screw *c*, until the required degree of resistance is obtained.

The inventor says: I do not claim setting truss pads to a given position, nor do I claim a ball and socket joint; but I *claim* rendering the joint of truss pads rigid in any desired position, by compressing the ball between two plates, as described.

No. 15,858.—Charles C. Reinhardt.—*Improvement in Glass Earthen Truss-Pads.*—Patented October 7, 1856.

This invention consists in constructing the back B with a flange *f* extending around its edge, so as to slip within the rim constituting the edge of the glass pad G, whereby the back B is secured to the glass.

Claim.—The attachment of metallic backs to the glass faces of truss pads by a flange around the edge of the back slipping within the rim, constituting the edge of the glass-face piece, substantially as and for the purposes specified.

No. 14,993.—William Alley.—*Improvement in Uterine Supporters.*—Patented June 3, 1856.

The nature of this invention consists in the addition of circular wings, springs, and hinges to the common or ordinary pessary now in use, and worn by females to prevent the falling of the womb.

Claim.—The circular wings A, perpendicular springs B, and the hinges C to the wings.

No. 15,897.—William Provines.—*Improvement in Uterine Supporters.*—Patented October 14, 1856.

The flexible tube or syringe *a* can be inserted into the mouth piece *b*, and the supporter C made of elastic material can be inflated to any desired degree. By introducing a blunt point into the opening *b*, the valve *d* can be raised, and the air will escape from the supporter, and the latter will be reduced to a flaccid state.

Claim.—The combination of the ball and the valve apparatus, described in the manner and for the purposes set forth.

XXI.—WEARING APPAREL.

No. 15,570.—William Osborn.—*Improvement in Machines for Pressing Bonnets and Bonnet Frames.*—Patented August 19, 1856.

The nature of this invention consists in the peculiar shape of the upper and lower dies J and *c*, as represented in the illustrations; the upper die being provided with heaters *a*, and the lower die with a heater *b*, by which the entire bonnet can be pressed by one single impression.

The inventor says: I do not claim any of the separate parts set forth. Neither do I claim pressing or forming a separate flaring face-piece or a separate crown-piece for bonnets or for bonnet frames.

I *claim* forming the flaring face-piece and side crown of a bonnet or a bonnet frame in one piece and at one operation, substantially in the manner set forth, and irrespective of the particular form of the bonnet or frame.

No. 15,671.—William Slade.—*Improved Buckle for Wearing Apparel.*—Patented September 2, 1856.

This buckle is constructed of two bows B and two sets of tongues *b*. Both pairs of tongues may be secured to a single central piece A, to which the bows are hinged at four corners *a*, or each set of tongues may have its separate axis hinged to the bows and connected with each other by links C.

Claim.—The double-jointed buckle, constructed substantially as set forth.

No. 15,666.—Edward Parker.—*Improved Buckle for Wearing Apparel.*—Patented September 2, 1856.

The nature of this invention will be understood from the claim and engraving.

Claim.—Swaging or cutting the blank, or the bow A and loop B, entire or in one piece, from a metal plate, and securing the tongue D in the buckle by bending or closing the cross-piece C around the shank *c*, substantially as described.

No. 14,019.—Walter Hunt.—*Improvement in Shirt Collars.*—Patented January 1, 1856.

The nature of this invention will be readily understood by reference to the accompanying claim and illustration.

Claim.—What I claim as my invention and desire to secure by letters patent in the manufacture of shirt collars, or sham shirt collars, is uniting only the extremities of the lower edges of the side pieces *b b* to the neck band *d* by means of any suitable fastenings, for the purpose of enabling a flat-sided collar to fit easily and gracefully about the face, substantially as herein set forth.

No. 14,308.—Othniel W. Edson.—*Improvement in Machinery for Making Shirt Collars.*—Patented February 26, 1856.

The jaws A and B have longitudinal folding corners *v* and *u*. The upper jaw A is thin at its rear end, so as to constantly spring upward. The elastic tongue D is fastened to B, and springs into and fills *u* when not held up. C is another tongue similar to D, fastened to A, and filling recess *v*. One thickness of the double cloth W is inserted between A and C, and the other between B and D, and the edges of both layers between E and F, (see fig. 1.) The cam N is then turned, (see arrow q^1,) when C and D will spring back into their recesses, and clamp the cloth in the corners *u* and *v*, (see fig. 3.) To insure the crimping, the clamps are then pressed together (see fig. 4) by the action of projection j^2, and then allowed again to separate (see fig. 3) when N reaches position fig. 2. As N is turned further, the blades E and F are carried between C and D, and thus the edges *x y* are folded

inwards, (see fig. 5,) and by turning the cam further the clamp A is pressed down (see fig. 6) to insure the crimping between C and E and between D and F. N is then turned back so as to allow E and F to spring back to position fig. 1, when the folded cloth is drawn from between the jaws and tongues ready for stitching, (see fig. 7.)

The inventor says: I do not limit my claim to the particular modes herein described of giving the desired or necessary movements to the jaws, tongues, and blades, as other devices besides the cams and levers shown in the drawings can be effectually employed in their stead for these purposes.

I *claim* the jaws A B, tongues C D, and blades E F, when the same are combined and operated substantially as herein described, to simultaneously fold inward two contiguous edges of double cloth.

2d. I claim giving a forward longitudinal motion to the blades E F immediately after the edges of the cloth have been turned inward thereby, as herein described, to complete the formation of the corners of articles folded.

No. 15,634.—William Fosket and Benjamin S. Stedman, assignors to Julius Pratt & Co.—*Machine for Sizing Comb-Blanks.*—Patented August 26, 1856.

Rotary motion being imparted to the arms G G G, the blanks are placed upon the resting place *c* between the arms G. The blanks rest at their lower edges on the rebate *f*, and their upper edges are supported by the projection *a*. The blanks are swept around by the arms G, and passing from the narrow part of the groove to the wider part of the same, they will drop through such one of the openings E as exactly corresponds to the length of the blank. In fig. 1 one blank is represented as being supported by the edge *a* and rebate *f*, while the other is on the point of dropping through the opening E.

Claim.—The gradually receding edge *a*, arranged within or around and inclining towards a rebate *f*, so as to form a tapering opening E between them, with a resting place *c* at the narrow end of the opening, when combined with a set of arms G G rotating or otherwise moving over the opening, and with boxes, compartments, or other receptacles below, to operate substantially as and for the purpose set forth.

No. 16,289.—Seligman H. Strouse and Joseph Strouse.—*Improvement in Shirts.*—Patented December 23, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventors say: We do not claim the formation of the sweep or the arched profile from the neck to the shoulders of shirts by means of inserted pieces, such as gussets.

We *claim* the yoke *a* constructed as described, with curved springs C *d*, in combination with the manner of attaching the same to the back of the shirt, with the gathers in the centre, as set forth.

No. 16,050.—JOHN P. DERBY.—*Sleeve Fastener.*—Patented November 11, 1856.

The cross-bar F is attached by means of stem D to the face-plate A, and is inserted through a hole in the wristband and attached to its underside. The face-plate A is then turned and the stems N are inserted into the slots P on the under side of said face-plate. The object of the cams *s* will be understood by reference to the claims.

Claim.—Arranging and combining with a face-plate by means of a post or stem, or cross-bar or plate, which, with proper construction, admits of the insertion of a stem or stems into the holes of a wristband or cuff, and is then secured in place by means of slots in the plate that revolves until the stems are entered therein.

Also the spring which serves to keep said stems in place in the slots, and which prevents the face-plate from being turned until its force is overcome.

Also combining with the stem of face-plate and cross-bar, in manner substantially as described, two sets of cams, whereby the distance between the stems of cross-bar and face-plate can be graduated to receive the wristbands at pleasure, and whereby the distance that the face-plate and cross-bar traverse in opposite directions may also be controlled, the whole making a perfect and safe fastener for the purpose described.

No. 14,756.—LUCIUS PAIGE, assignor to Himself and ALBERT L. LINCOLN.—*Improvement in Studs for Wearing Apparel.*—Patented April 22, 1856.

The inventor says: I am fully aware that it is not new to make a shirt stud with a wire shank extending from its centre and bent around in a helix or spiral form. Therefore I do not claim the same nor the principle of the screw contained therein.

But I *claim* my improvement, which consists in constructing the back disk holder of an ordinary shirt-stud or button with the slit *d* extending from its circumference to the shank, and having one of its edges raised with respect to the other.

No. 15,824.—AMOS STOCKER.—*Improvement in Tailors' Measures.*—Patented September 30, 1856.

The shape of this instrument for taking measures is represented in the engraving; it is provided with a number of eyelet-holes A B C, &c., and with small hooks at the points A and R. In using this instrument the straight edge is placed on a line with the bottom of the arm, as represented, extending to the centre of the breast or beyond, and serving as a base line from whence to start in taking the measures.

The inventor says: I do not claim such an instrument as the one patented to B. J. Lewis, November 19, 1833; nor do I claim the instrument as described by Samuel T. Taylor, rejected November 18, 1840.

Nor do I claim the instrument referred to as patented to W. J. Wells, April 20, 1852; nor do I claim as new the use of a tape measure, as seen in figure 12; nor do I claim the use of the hooks as new.

But I *claim* the instrument, as seen in figure 1, with the arrangement of its eyelet-holes, eyelets, and letters, substantially as described and for the purpose set forth.

No. 16,106.—C. W. Williams.—*Improvement in Tailors' Pressing-Machines.*—Patented November 18, 1856.

By reference to the engraving it will be seen that the pressing iron *l* is suspended from a convex disk *b*, which turns upon a ball and socket joint *e*, and that the hand-lever *k* is connected to the disk by means of a universal joint, consisting of the joints *n* and *o* and turning rod *p*. By moving the pressing iron in the same manner as by ordinary hand pressing, by means of handle *k*, the operator can regulate the pressure with a very slight expenditure of strength.

Claim.—Suspending the iron or goose from a convex disk, which turns freely upon a ball and socket joint, or its equivalent, and which forms a bearing for the lever to act against, as set forth.

No. 14,431.—Charles C. Reed, assignor to Charles C. Reed, William S. Reinert, and Jacob Schnell.—*Improvement in Umbrella Ribs.*—Patented March 11, 1856.

By combining strips of cheap material with narrower strips of whalebone, umbrella ribs can be furnished at less cost than those made entirely of whalebone.

Claim.—The manufacture of umbrella ribs, by grooving a cheap material, such as hickory, bamboo, or ratan, and securing within the groove a strip of whalebone, substantially in the manner set forth.

No 16,063.—James W. Martin.—*Improved Method of Preparing Ratan for Umbrellas.*—Patented November 11, 1856.

The ratan is first squared by passing it through between the knives *a b*, which operate on three sides, the fourth resting on a metal plate of a frame, to which said cutters are attached. When the ratan is squared, it is fastened between the jaws *i* of the mandrel *h*, and operated upon by the rotating cutter *l*, by which the end is formed to the proper shape.

Claim.—The combined devices, as described, for forming and tipping the ratans or whalebone for umbrella ribs, as set forth.

No. 14,683.—Dewitt C. Warner.—*Improvement in Wigs.*—Patented April 15, 1856.

This invention consists in attaching the hair to a ground-work of gutta-percha, either in the form of a perfect scalp or frame-work for

a whig, or in plates or strips of any desired form for toupees, plaits, curls, &c.

The inventor says: I do not confine myself to any particular method of inserting the hair in the gutta-percha.

But I *claim* attaching the hair to a ground-work of gutta-percha, by means of the adhesive property of the gutta-percha, as developed by the application of heat.

No. 16,140.—JOHN P. DERBY.—*Wristband-Fastener.*—Patented December 2d, 1856.

When the fastener is open, as in figure 2, the stationary arm C can be inserted into the button-hole of the wristband; and when so inserted, the section D can be easily entered. When both are entered by turning the face-plate A, the position of lever F is altered, which has the effect to turn the wing D, thus closing the fastener. The face-plate A, being attached to cross-piece B by means of joint P, is easily turned; and when the fastener is closed, it is held in place by means of slot N, which a projection on the cross-piece B enters.

Claim.—Arranging and combining with a face-plate, in manner substantially as described, two parallel cross-pieces B and C; one of which, the lower or second cross-piece, is constructed with a movable section D.

The hollow stem E, through which the post passes, that is connected with the movable section of the cross-piece.

Also, the arrangement of the lever H, in connexion with the face-plate and the movable section D of the cross-piece, whereby, by turning the face-plate, the desired motion is given to the cross-piece or wing; the whole making an effective fastener for the purposes described.

XXII.—MISCELLANEOUS.

No. 14,719.—WILLIAM H. HALE.—*Improvement in Hotel Annunciators.*—Patented April 22, 1856.

By drawing the wire D, the hammer 2 is made to fall over and strike bell G, resting on rack H, opposite apertures in front board, (fig. 2,) and remains until crank J is turned, which raises rack H and throws said hammer back at rest, like hammer 1, ready to work again.

The inventor says: I do not claim the device of tilting number plates to denote which number is wanted, as it is not new; but I do *claim* the combination of the number plate with a hammer, whereby I am enabled to show the number and strike the bell with the same piece.

I also claim the arrangement of said tilting number plates, or number hammers, or their equivalents, in ranks upon ranks of wires, respectively operating them, the wires passing through slots in the hammer levers.

No. 16,116.—Edwin O. Goodwin.—*Improvement in Backgammon and Checker Boards.*—Patented November 25, 1856.

The playing face of the checker board is provided with indentations A of a proper depth to receive the pieces and to prevent them from sliding together when at play. The backgammon side, (fig. 2,) is provided with raised partitions B, to prevent the pieces from sliding from one partition into the other. Each of the halves of the box is provided with a drawer C, to hold the pieces when playing and when not in use. These arrangements are made so that two persons can play when riding in railroad cars, carriages, or on shipboard.

Claim.—The construction of draught boards with the indentations on the face, the raised divisions in the backgammon part, and the drawers for the pieces, all in combination, in the manner and for the purpose substantially as set forth.

No. 14,900.—Samuel D. Quimby, assignor to Edward A. Locke.—*Improvement in Frames for Travelling Bags and Mail Pouches.*—Patented May 13, 1856.

The gore-pieces D C serve to extend the hinges apart from one another, and also to project into or close the opening between the frames when they are brought together.

Claim.—The improved mouth frame, or combination of two folding side frames A B, and two hinge-extenders and gore-closers C D, arranged, connected, and made to operate together, substantially in manner and for the purpose as stated.

No. 15,042.—Servetus Longley.—*Improved Apparatus for Rolling and Handling Barrels, &c.*—Patented June 3, 1856.

The nature of this invention will be understood from the claim and the engraving.

Claim.—The levers 2 and 3, in combination with the spring 6, chain 8, cam attachment 9, clutches 10 and 11 working freely upon wrists, and the handle 4.

No. 14,964.—Conrad Leicht.—*Improved Billiard Cues.*—Patented May 27, 1856.

When the cue to be topped is inserted into the tube C, the screw D is turned until it comes in contact with the surface of the cue; the gimlet B is then inserted until the handle comes in contact with the head of the screw, this being the depth required, and thus making all

holes uniform in the cue. The top layer G is affixed to the cues by means of a screw H, thereby preventing their falling off, or of admitting said tops to be replaced at a moment's notice.

Claim.—My mode of providing the cue tops with screws, and adjusting them to the cues, in the manner as above substantially described.

No. 14,290.—Michael Phelan.—*Improvement in Billiard-Table Cushions.*—Patented February 19, 1856.

The object of this improvement is to construct a cushion of the proper degree of elasticity, and which will cause the ball to perform perfect angles over its entire surface.

Claim.—A billiard-table cushion, composed of a block of India-rubber C, a layer of cork D, and strip of leather E, arranged, combined, and applied, and operating substantially as and for the purpose set forth.

No. 15,994.—William B. Carpenter.—*Improvement in Billiard-Table Cushions.*—Patented October 28, 1856.

The spring-strip A is secured to the wood-work C at its lower edge by means of screws *c c* The upper edge is to be left elastic along its entire length; the space B between the spring A and wood-work C may be stuffed with cloth, and the cushion covered with leather.

The inventor says: I distinctly disclaim the use of the metallic spring-strip or facing in the construction of billiard cushions.

But I *claim* the mode described, or its equivalent, of fastening of the metallic spring-strip or facing firmly at or near its entire lower edge *c c*, substantially as and for the purposes described.

No. 15,788.—Amasa Stone.—*Improved Tool for Forming Grooves Around the Orifice of Bottles or other Vessels made from Plastic Substances.*—Patented September 23, 1856.

The circular flange F, which forms the groove around the orifice of the bottle, can be made to revolve freely with or without the plug G, which is inserted in the neck of the bottle at the same time that the jaws B are caused to hold the nozzle of the bottle by operating them by means of the springs A, to which they are attached.

Claim.—In the described tool for forming the orifices of bottles or other vessels made from plastic substances, with a groove around the orifice, the revolving flange F, constructed and arranged to form a groove in the end of the bottle-nose, or other vessel, substantially as described.

No. 15,098.—George Blanchard.—*Improved Apparatus for Cutting the Strings that Secure Corks in Bottles.*—Patented June 10, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The internal and slanting arrangement of one or more knives C inside the cup D, the knife or knives being so arranged in the cup that, when the cup is put over the cork and turned, the strings are immediately cut, and the cork safely received in the top of the cup.

No. 14,446.—Henry N. Degraw.—*Improvements in Machines for Corking Bottles.*—Patented March 18, 1856.

The cross-head C, together with the cylinder G, is depressed by operating the treadle I. The cork is then placed in the upper end of the cylinder G, and the gas allowed to pass through tube U and cylinder G into the bottle S. When the bottle is charged, the piston H is made to descend by depressing one end of the lever K, whereby the cork is forced into the bottle.

The inventor says: I do not claim the piston H and cylinder G, operating as shown, for the purpose of placing the corks in the bottles, for they have been previously used; but I *claim* securing corks in bottles and other vessels containing liquids, charged or impregnated mechanically with carbonic acid gas, by having proper cork-holders T attached to the bottles or vessels, and closing the jaws of the same by the levers R *h h* and jaws P P, or other analogous devices, immediately after the corks are forced into the bottles by the piston H, so that the holders will secure the corks in the bottles as soon as the piston is withdrawn from them; whereby the corks are secured in the bottles without removing the bottles from the bed or platform of the apparatus, and consequently the work of charging the bottles with gas, placing the corks therein, and securing them in the bottles, is performed at one operation, as herein described.

No. 14,255.—John Seithen.—*Improved Envelopes for Bottles.*—Patented February 12, 1856.—Antedated August 29, 1854.

The rushes or straws S are spread round the neck of the pattern E of the bottles to be covered. This is done when the ring L is at its lowest position (see full lines in the engraving); the lower ends of the rushes will then cover the exterior of ring L. The cap D is then brought down upon the top of the bottle, as represented in the engraving, and held down by a weight or otherwise. The elastic ring K is placed as represented by full lines, before commencing to make the envelope for the bottle. The rushes are tied in under the ring K by a string N. The ring L is then to be raised into the position represented by dotted lines, by which the lower ends of the rushes will be folded up, as represented by dotted lines, and may then be tied by strings 1 and 2. The cap is then removed, and the upper ends of the rushes are to be tied in by a string, thereby completing the envelope.

Claim.—The combination of mechanism and the making of envelopes for bottles, as herein described.

No. 15,802.—Mills B. Espy.—*Improved Mode of Hermetically Sealing Bottles.*—Patented September 30, 1856.

The flat cork *d* is placed upon the mouth of the bottle, and the screw collar C, composed of two parts, is held against the under edge of the lip of the bottle; the cap B is then screwed to said collar, and thus secures the cork *d* hermetically to the bottle.

Claim.—The employment of the two-part screw collar C, for the purpose of drawing down and holding the cover over the mouth of a bottle, so that the said bottle shall be hermetically closed by the cork *d*, or its equivalent, being compressed upon the upper edge of the lip of the same, as described; the said collar being constructed, applied, and operating substantially in the manner set forth and described.

No. 15,514.—Jabez W. Hayes.—*Fruit Box.*—Patented August 12, 1856.

This invention consists in forming a box of two pieces of veneering A and B, and using no other fastenings than a cord. The piece A is slid through the slots *c* of the piece B, as represented in fig. 2; the sides are then bent at right angles, and fastened by means of a cord *e* passing through the notches *a*.

Claim.—The combination of the two pieces of veneering A and B with the notches or slots *a a a* and the longitudinal openings *c c*, interwoven at the centre, bent at right angles, and secured together by the cord *e* in the slots *a a a a*, as described, and for the purpose mentioned.

No. 14,783.—Charles P. S. Wardwell.—*Improvement in Box-Openers.*—Patented April 29, 1856.

The advantage of rotary dogs C is in presenting a flat surface to the wood and maintaining it during the operation of opening a box, which lessens the liability of splitting the cover.

Claim.—The employment of rotary dogs C C, or their equivalents.

I also claim the combined arrangement of the spring G and flattened shanks F F of the dogs, whereby the wedge lips of the dogs are kept in the same line or parallel with each other for convenience of insertion, without hindering the desired rotary motion of the dogs.

No. 16,017.—William McLachlan, assignor to Robert Livingston.—*Burglars' Alarm.*—Patented November 4, 1856.

The plate B is fastened to the handle of the key A, and the alarm is set, as represented in fig. 1. When the key is turned, the ball G of rod D slips through one of the holes O, and the bell J falls into the position of fig. 2, bringing the stop F from the position X into the position Y which causes the hammer in the bell J to strike the alarm.

The inventor says: I am aware that alarms have been applied to locks; I therefore do not claim the alarm, or any particular construction of the alarm.

I *claim* simply the application of a portable alarm of any construction to the key, in the manner set forth, so that the key, being in the lock in one position, cannot be interfered with, or the position changed, without indicating the same by causing an alarm to be given.

No. 16,200.—William Palmer Surgey, assignor to Charles Henry Stanley.—*Improvement in Cigars.*—Patented December 9, 1856; England, September 25, 1854.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I am aware splints of wood or other matter, with combustible and ignitible composition applied thereto, have been inserted into the ends of cigars, and then, by the application of friction to such combustible composition, the cigars have been ignited; but such combustible compositions were formed separately, and were capable of being ignited separately, for the purpose of lighting; and to the best of my belief, such application has been found objectionable, from the trouble occasioned in effecting the insertion of the wood or other matter, to which the combustible composition was applied, and by the injury to the cigar, by breaking the end of it, in effecting such insertion. I do not claim for the application of such composition to the ends of cigars, cigarettes, or cheroots, in the form of separate instruments, to be applied, when formed into igniters; as my invention consists in applying the compositions so as to form the igniter into and as a part of the cigar, cigarette, or cheroot, whereby such ignitable matter, mixture, or composition, becomes a component part of such cigars, cigarettes, or cheroots, to be ignited by the simple application of friction, as when lighting fusees, vistas, lucifer matches, and other instantaneous lights, as expressed.

And I *claim* cigars, cheroots, and cigarettes, so made, as a new and useful article of manufacture.

No. 14,763.—William Dawson.—*Improvement in Cigar Machines.*—Patented April 29, 1856.

The cutter W cuts off the required amount of filling, and presses it between the rollers *b b* on to the flexible apron over the shaping dies *d d*. The wheel C in its revolution brings the projection E into contact with the clutch, and throws it into connexion with the roller I; the strap J moves the bed K forward; the flexible apron L attached to it moves under the forming rollers *b b* and over the shaping dies *d d*, rolling the filling and giving it a proper compression. The wrapper is placed diagonally on the apron L, and is wrapped around the filling during the further movement of the bed. When the bed K reaches nearly the end of its travel, the forward die *d* is moved by the strap *e*

and lever *f* away from the back die, allowing the cigar to fall through the aperture *i* in the apron L into a box.

Claim.—The combination of the forming rollers *b b*, the flexible apron L, and the shaping dies *d d*.

No. 14,732.—Thomas Petherick.—*Improvement in Coal-Breakers.*—Patented April 22, 1856.

The coal, after falling from the platform *e* on the teeth or chisels, drops therefrom upon the sloping surfaces *g g* of the block A, and slides into the screens *h*. Any coal which may remain of a larger size may be, after passing over those screens *h*, elevated to the platform *e*, to be dropped again. The coal may be raised to the platform by an inclined plane, windlass, or by any other suitable and convenient means.

Claim.—The mode of breaking coal by causing it to fall from a suitable height, and between proper guards or guides *f f*, upon sharp pointed teeth *b* and chisels *c* placed on blocks A.

No. 16,098.—Bennett Potter, Jr.—*Mode of Softening Cork by Steam.*—Patented November 18, 1856.

The rough cork in sheets is placed upon a wooden grating C in the boiler A, and steam being admitted, the action of the steam softens the shell and prepares the cork for cutting.

Claim.—Subjecting the cork to the action of steam for the purpose set forth.

No. 14,527.—William H. Towers.—*Improvement in "Creepers" to Prevent Slipping on Ice, &c.*—Patented March 25, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Forming the "creeper" of three plates B B A, having calkins, or pins B^1 B^1 A^1, on their lower surfaces, and bent on their outer ends, and jointed together at their inner ends, and in such relative position to the sides and back portion of the heel of the boot or shoe, for which they are designed, as will enable their outer ends to move eccentric with the curves of the said side and back portion to secure the "creeper" to the heel, and their security of attachment to be increased by the act of planting the foot of the wearer in walking, as herein set forth.

No. 15,294.—Asahel A. Hotchkiss and Andrew Hotchkiss.—*Improvement in Curry-Combs.*—Patented July 8, 1856.

The nature of this invention can be understood by reference to the claim and illustration.

The inventors say: We do not claim striking up or forming a curry-

comb from a solid sheet or piece, as this was patented to Andrew Hotchkiss on the 13th March, 1849; but we *claim* the turning of solid corners upon the shell to save riveting, and the serrating of the ends of the shell to form teeth thereon, the corners of the plate being first scolloped out, so as not to project beyond the teeth after they are bent up into shape, as set forth and represented.

No. 15,440.—Solomon W. Ruggles.—*Pick-Pocket Detector.*—Patented July 29, 1856.

This device is worn similar to a watch, and has a chain attached to the hook E. A pick-pocket, in pulling the chain to extract the supposed watch from the pocket, will turn the spring-wheel B, and the projections *b* on the said wheel will actuate the hammer C, and the bell A^1 will be sounded, the spring *h* throwing the hammer against the bell, and the alarm will consequently be given.

The inventor says: I do not claim in alarm-detectors starting or operating the alarm by pulling or drawing on a cord, or its equivalent, connected therewith; nor yet in such devices, of itself, the mechanism here employed of a spring-barrel provided with teeth, and in its rotation operating the spring-hammer of a bell to give a repeated alarm.

But I *claim* suspending the alarm-detector or instrument proper, including the case A and its working parts, by the cord or chain D, from or through the spring-barrel B, for alternate operation of the cord and bell-hammer by said barrel, in relation to the case, as and for the purposes specified.

No. 15,889.—Don J. Mozart.—*Improvement in Escapement Movements for Automatic Fans.*—Patented October 14, 1856.

This fan is kept in motion by a common clock-work, and the invention relates only to the manner of giving to the fan a reciprocating rotary motion, which is accomplished by means of the two scape-wheels D and E. Each of these wheels is provided with alternate sections of teeth *d* and *e*, and spaces between them, and the respective sections of each scape gear alternately into the pinion *f* on the fan-spindle I, thereby alternately turning said spindle and the fan L in opposite directions.

Claim.—In combination with sectional scape-wheels D E the banking-pin M, meeting the sections thereof at each vibration, substantially in the manner and for the purposes set forth.

No. 16,014.—Elmore Horton.—*Fishing Implement.*—Patented November 4, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

The inventor says: I am aware that spring grab-hooks, with notched cross-bar, have been used.

But I *claim* the spear cross-bar *c*, notched at each end *e e*, in combination with the spring-jaws *a a*, as set forth and described.

No. 14,587.—Wooster Smith.—*Fishing-Lead.*—Patented April 1, 1856.

The lead A consists of a round piece of lead from two to five pounds in weight, with a swivel F to prevent the attached line from twisting. The cap B cannot be easily battered by striking the rocks at the bottom.

Claim.—The improved shape of my lead A, the improved mode of fastening the long part of the fish-line to the swivel F in the top of the lead, the cap B, of iron, brass, or other hard metal, on the bottom or descending end of the lead, the horse-line running through the lead at the bottom end, the swivels and rings D attached to the ends of said horse-line, to which rings of the swivels the small lines, to which the hooks are fastened, are attached, and said swivel in the top of the said lead, to which said long part of the fish-line is fastened, as aforesaid.

No. 15,466.—John A Bailey, assignor to John Warrin.—*Reel for Fishing-Rods.*—Patented August 5, 1856.

The reel-frame A and reel B, with the line wound around it, are constructed in the usual manner, but the bevel pinion G on the crank-shaft F is kept out of gear from the pinion D on the reel-shaft by the pressure of a spring E upon the face of the bevel pinion G. By this arrangement, the reel will revolve freely when the line is thrown out, not being obstructed by the friction caused by the gearing. When the line is to be wound up, the pinions G and D are thrown into gear by pressing inwards crank H and crank-shaft F.

Claim.—The sliding crank-shaft F and spring E, arranged as shown, or in an equivalent way, so that the pinion D and wheel G may be placed in and out of gear, as desired, and the reel B connected with and disconnected from the shaft.

No. 14,706.—Julio T. Buel.—*Improved Fishing Tackle.*—Patented April 22, 1856.

The upper part of the shank terminates in a small barb A^1, whereby a minnow can be secured more permanently, and in a position to insure the capture of the fish. The hook consists of two parts, so as to allow the lower barb being turned out of line with the upper one; and the upper barb is so constructed that an elastic eye shall be formed, whereby the artificial minnow may be placed on or removed. The minnow-barb, combined with the barb A, turns free of the barb A, so that a spiral twist may be given to the natural minnow.

Claim.—1st. A hook with two barbs A A^1, substantially as and for the purpose set forth.

2d. Making the hook hang two barbs A A^1, in two parts, and uniting said parts loosely together, so that one shall turn free of the other.

3d. Combining with the barb A one or more minnow-barbs, and having one of the barbs turn free of the barb A, substantially as and for the purpose set forth.

No. 15,279.—Edward S. Boynton.—*Apparatus for Hitching Horses, Clothes-Lines, &c.*—Patented July 8, 1856.

To use this horse-hitch, the arm of the lever C must be pressed downward to open it for the strap D to pass through. The spring E will press the cam against the strap, and the eccentric form revolving will retain it fast, and the harder it is pulled the tighter it will hold.

Claim.—The application of a cam-shaped lever C for horse-hitches, in the manner and for the purpose substantially as herein set forth and described.

No. 15,337.—Thomas J. Godman.—*Apparatus for Slaughtering Hogs.*—Patented July 15, 1856.

The hogs are scalded in the scalding-vat A and drawn out on the inclined bench B; and when arrived at the platform P, a gambrel is inserted into the hind legs and passed over one of the hooks H of the revolving wheel E, in which manner the hogs can be removed more expeditiously than by carrying them.

The inventor says: I do not confine myself to the precise details herein given, so long as the peculiar character of my invention is retained; but what I *claim* is, the horizontal revolving wheel or frame provided with hooks on its periphery, arranged at or near the scalding bench, and used to transport and transfer the hogs from the bench (on which they are deprived of their hair by pulling and shaving) to the scraper-down, gutter, washer out of the inside, and off-bearers who hang them in the drying-room, holding the hogs convenient to each laborer in succession a proper time for him to perform his allotted or respective portion of the slaughtering process.

No. 16,312.—James Botton.—*Improvement in Horse-Fastening.*—Patented December 23, 1856.

The operation of this apparatus is as follows: When the horse is to stand, the tie-rein C is attached to any one of the rings A by means of the spring-hook B. If then the horse attempts to move forward, the catch *b*, pressing against one of the teeth of ratchet *a*, carries the box D around with the hub of the wheel. By this means the tie-rein between B and C is wound around the hub of the wheel and quickly stops the horse.

Claim.—The combination of a ratchet-wheel with the hub of a wheel of a vehicle and with a tie-rein capable of adjustment so as to bear equally upon both sides of the bit of a horse or other animal used for draught, whereby the rein is drawn and the animal is checked if he move forward, and the rein is loosed if he move backward, as set forth.

No. 15,483.—Isaac H. Giffing.—*Instrument for Breaking Ice.*—Patented August 5, 1856.

In using this instrument the pointed end is placed on a piece of ice, the loop is held in one hand, and the weight B sliding on rod A is raised with the other, and when the weight falls down upon the shoulder *c*, the concussion will cause the ice to break.

The inventor says: I do not claim a pointed iron or steel for breaking ice.

But I *claim* the looped rod, the sliding ball or weight, and the point, all in connexion, as set forth, using for that purpose any metal of any size or shape that may be necessary for the purpose of ornament or for attaining the object in view, viz: breaking ice.

No. 16,152.—Stephen Scotton.—*Ice-Saw.*—Patented December 2, 1856.

The operation is as follows: The swinging frame M is turned to the desired angle by turning the wheel *k* so that the saw O may be set at the proper height to cut through the ice. By turning the crank G, the saw O is rotated and cuts the ice; the saw is fed to its work in consequence of the screw *h* gearing into the toothed wheel L, and as the front wheels *b* have points in their peripheries, the platform is moved along and is kept in a right line by the knife-edged plates *d* on the peripheries of the back wheels *c*. When the device has reached the end of its cut, the wheels of the platform are raised up from the ice by turning down the wheels S so that they bear upon the ice. This is done by turning shaft R by means of a lever attached to it. The wheel *o* is also depressed and made to bear upon the ice by turning crank *s* of shaft *q;* and by operating hand lever *l*, the wheel *o* is turned and the platform is moved laterally the width the blocks of ice are intended to be.

Claim.—1st. The saw *o*, operated or rotated, as shown, and placed in the swinging frame, which is rendered adjustable by means of the rack Q, pinion *i*, and notched wheel *k*, as described, for the purpose set forth.

2d. Moving the platform A and feeding the saw O to its work by means of the wheels H I on the driving shaft C, the pinion *f* and screw *h* on the shaft J, and the toothed wheel I on the axle B, as shown and described.

3d. Moving the platform A laterally, when necessary, by means of the wheels S S on the shaft R, and the wheel O on the plate T, these parts being arranged as described.

No. 15,226.—Samuel B. Fay.—*Metallic Hooks for Labels.*—Patented July 1, 1856.

The nature of this invention will be understood from the claim and engravings.

Claim.—The constructing of tags or labels by affixing thereto a hook E so formed as to readily hook into the goods to be marked, and by the spring of its shank retain its position without being liable to become readily detached.

No. 15,883.—Dominico Giambastiani.—*Firemen's Ladder.*—Patented October 14, 1856.

This firemen's ladder consists of sections *a b c d e*, which can readily be put together, so as to form a double ladder of great steadiness and strength. The two lowest frames are connected by braces *f*, which are hinged together, and to the frames at *t u* and *s*, forming the foundation for the upper structure, consisting of the rest of the sectional frames. The entire ladder can be folded and put together, so as to be transportable.

Claim.—The combination of the folding foundation-frame $e\ e^1$ with the detachable single ladder sections $a\ a^1\ b\ b^1\ c\ c^1\ d\ d^1$, as above described, and for the purpose stated.

No. 15,941.—Sidney S. Turner, assignor to Himself and Elmer Townsend.—*Machine for Splitting Mackerel.*—Patented October 21, 1856.

In the operation of this machine, when the carriage E is drawn entirely backward, it is ready to receive a mackerel between the jaws H I. During the act of retracting the carriage, the front arm of lever K will be drawn against the post N, and so as to cause the lever to be moved on its fulcrum, and thereby move the jaw I away from the jaw H, thus opening the jaws for the reception of the fish. On introducing the mackerel between the jaws, its head is to be presented towards the cutting-knife B, the belly resting on the carriage E. The carriage is then moved in the direction of the arrow, causing the shaft C and cutter B to revolve at a rapid speed, and to force the rearmost arm of lever K in contact with post M, thus moving the front end of the jaw H away from that of jaw I. During the operation of the machine the mackerel will be split, and be thrown out from between the jaws, and discharged from the machine.

Claim.—Combining with the cutting-knife B and the movable carriage E a set of centring and holding jaws H I, or the mechanical equivalent therefor.

Also, the improvement of making the knife move faster than the carriage, or in other words, combining with the cutting-knife and the carriage a mechanism for rotating the cutting or splitting part of the knife at a greater velocity than the carriage may be moved, the same being not only to facilitate the splitting of the fish, but to cause the discharge of it from the carriage, as described.

Also, combining with the holding carriage, the centring jaws, and the splitting-knife, a mechanism for operating or opening the centring

jaws to allow of the discharge of the fish by the action of the knife as specified.

Also, combining with the holding carriage, its centring jaws, and the knife, a mechanism to open the said jaws during the backward movement of the carriage, the same being to prepare said jaws for the reception of a fish, substantially as set forth.

No. 15,393.—Calvin D. Smith and Horace Patterson.—*Improved Friction-Match Machine.*—Patented July 22, 1856.

The motion of the table B on moving towards the dies brings the projection J against a stationary cam R, so as to turn the plate G, and press the pieces I I I on to the splints, as the table B finishes its motion that way, at which point it rests until the block E comes against the dies F, moving with the same speed as the block-holder, until the splints are forced out of the dies, and are left in the pieces I I I. The table B continuing its motion towards the rack, motion is given to the elevator K, which separates the pieces I I I in time to enter the ends of the splints into the grooves; the last part of the motion of the table B towards the rack L bringing a projection against a stationary cam, which turns the plate G, casting off the pieces I I I from the splints, leaving them in the rack, and the backward motion of the table B reverses the action of the elevator K, bringing the pieces I I I down to correspond with the dies.

The inventors say: We do not claim any particular form or arrangement of parts or number of splints made or carried at once.

But, 1st, we *claim* the table B with its plate G, and pieces I I I, or their equivalents, to carry the splints from the dies, and place them in the rack, substantially as set forth.

2d. We claim the peculiar construction of the rack pieces L L L to facilitate their receiving the splints, and for the better control of them, as described.

No. 14,782.—Alexander Underwood.—*Improved Machine for Manufacturing Friction-Matches.*—Patented April 29, 1856.

A detailed description of this invention would occupy too much space to be given here.

Claim.—The cutting and racking device T T T, formed of the several parts or elements *b c c d d e e* f^1 f^1 *g g h*, as described, and as fully shown in figures 2 and 3.

2d. I claim the manner or mode of feeding the blocks or billets of wood to the cutters by the alternate lateral shifting motion of the box f^1 f^1, caused through the intervention of the devices *b j j* q^1 q^2 *r u v w y y*, combined with the fluted rollers, &c., as shown in figure 1.

3d. I also claim the toothed or geared reciprocating crank device A, with the combination parts *c c x* f^2 *k m n*, and the dipping pan *g c*, substantially as represented in figure 1.

4th. I claim the construction of the endless chain rack devices, formed

with a series of pins or teeth, as at E, together, in combination with the intermittent rotary rack carrier D and crank ratchet device G H, used and operated substantially as described.

5th. I claim the boxing and capping device K K L M N O O O P R W 2 2 4 4 9 9, as shown in figure 6.

No. 15,238.—Lawrence Holmes.—*Improved Match Machine.*—Patented July 1, 1856.

The rollers *b* below the feeding-hopper *c* are grooved, the projections between the grooves being brought up to an edge; a thin slip of wood being passed down between *b b* is reeded and nearly severed into round splints. As the reeded slip of wood passes down between the rollers *d d*, it will be evident, from the form of said grooved rollers *d d*, as shown, that the reeded slip will be separated into a series of round splints, separated in one direction the breadth of an intermediate splint, and in the other any desirable distance, as shown. The splints are then projected down through holes in the die-plate *e*, their lower ends entering between the slats *g* of a spring-clamp, which slides along below, and holds the splints after they are cut off by the vibrating knives *f f*. The ends of the splinters press against a shield *x* as they move forward, without coming in contact with the knife; this shield *x* yields as the knife operates, and is kept up against it by spring *y*.

Claim.—1st. The combination of the reeding-rollers *b* and separating rollers *d*, as herein described.

2d. In combination with the above the die-plate *e* and knives *f*, for completing the splint, constructed and operated substantially as set forth.

3d. I claim the shield *x* employed in the manner and for the purposes above described.

No. 14,655.—Samuel E. Hartwell.—*Improvement in Frames for Mosquito Nets.*—Patented April 15, 1856.

The ribs *o o* o^1 o^1 are extended by laying each one in its appropriate groove *b*, and then turning the clamp until each prong *d* lies over its respective groove. The clamp is secured to its position by the screw-nut *f*.

Claim.—The arrangement for securing the ribs rigidly in position when expanded, that is to say, the radial grooves on the knob, in combination with the grooved clamp, constructed and operated as described.

No. 14,910.—William O. George.—*Oracular Wheel or Centre-Table.*—Patented May 20, 1856.

The top of the table is so constructed as to be taken off. Within the table is a wheel revolving on a pivot *b*. This wheel contains a number of movable boxes or drawers, 1 2 3 &c. *i* is a circular compartment containing the checks.

A description of this game would occupy too much space to be given here.

Claim.—Said table, called the oracular wheel or unique centre-table, in combination with the game of Equality, together with the checks.

I do not claim those parts which, if taken separately, are well known, and those parts which are common to the usual round centre-table; nor do I claim that checks are new and of my own invention. But I claim, in regard to these checks, their application in this particular way and for this particular purpose, and the method or arrangement of them, in combination with the table and game, by which particular effects are produced, or certain results arrived at.

No. 16,019.—Henry B. Osgood.—*Spring Frame for Packages.*—Patented November 4, 1856.

The nature of this invention consists in attaching a receptacle A, by means of elastic fastenings C, to a rigid protector B, so that, in transporting said box, the articles contained therein may not suffer from the jolts or jars of the vehicle.

Claim.—The arrangement of the protector frame B in relation to the box or other receptacle A, and its combination therewith by means of the elastic fastenings C, or their equivalent, substantially as and for the purposes set forth.

No. 14,685.—George P. Wilcox and William Butler.—*Improvement in Apparatus for Teaching Phrenology.*—Patented April 15, 1856.

The wire B, being enclosed in the tube A, is guided in its movement by the shape of the tube A: the organ C and key D being firmly attached to the wire B, enables the operator to move the organ C by the movement of the key D; and thus in the movement of the organ C, when provided with a rubber covering, we are enabled to modify the shape of the bust.

Claim.—The combination of the tubes A, wires B, organs C, keys D, or their equivalents, when provided with a rubber covering, or its equivalent, for the purpose and in the manner described.

No. 14,904.—Henry E. Chapman.—*Improvement in Pill Machines.*—Patented May 20, 1856.

When motion is given to the driving-shaft L, the composition contained in the feeding cylinder C is forced through the perforations of the nose piece of the feeding cylinder by means of the bell-crank lever E, pawl G, ratchet-wheel H, feed-screw I, the follower J, and their attachments. When a sufficient quantity has been forced through, the knife K is forced down by the pins l l^1, striking it on the top, which, as it passes the perforations, cuts off small cylindrical pieces, which

fall into the grooves of the cylinders B B, whose surfaces being driven at different rates of speed, by means of cog-wheels D D, shape them into a spherical form, the bed-piece N serving the purpose of retaining the rolling motion of the pills, and smoothing down any remaining inequalities.

Claim.—The feeding cylinder C, the knife K, the grooved bed-piece N, and the two grooved cylinders B B, having their surfaces driven at different rates of speed.

No. 16,231.—John Edwin Forbes.—*Improvement in Skate Runners.*—Patented December 16, 1856.

The plates *a* and *b* can be separated and sharpened without resorting to the laborious task of sharpening skate irons by means of round files, as has been done heretofore.

The inventor says: I do not confine myself to common iron skates alone; but steel blades or runners may be successfully used until they are entirely worn out, which is not the case with the skates that are in common use, for they cannot be kept sharp, and consequently are abandoned.

Therefore, I *claim* forming the iron or runner of two parts or plates *a* and *b*, for the purpose and in the manner substantially as described and shown.

No. 14,586.—Ferdinand Klein.—*Improved Skates.*—Patented April 1, 1856.

The bar $a\ a^1$, forming a part of the heel-plate *b*, prevents the wood from splitting. The knobs $d\ d^1$ receive the heel straps $e\ e^1$.

The inventor says: I do not claim the wooden stock A, neither do I claim the plate *b* nor the skate iron *c*; but I *claim* the iron bar $a\ a^1$ attached to the heel-plate, and having two knobs $d\ d^1$, for the purpose as described.

No. 14,624.—Edwin Young.—*Improved Slate Frame.*—Patented April 8, 1856.

The frame consists of one piece of wood B, grooved to receive the edge of the slate and bent in such a form as to fit it. The ends C C are fastened together with a metal dowel D.

Claim.—As a new manufacture, a slate frame made of a single piece of wood B, provided with a groove to receive the edge of the slate, and bent so as to fit it, with the ends fastened together.

No. 15,366.—Abner G. Bevin.—*Improved Mode of Attaching Sleigh-Bells to Straps*—Patented July 22, 1856.

The nature of this invention will be understood by reference to the claim and illustration.

Claim.—Making the bells B without shanks and having holes *e* made through them to receive the staples *b*, which pass through the strap A and cover *c*, substantially as described and for the purpose set forth.

No. 14,490.—ADOLPH BROWN and FELIX BROWN.—*Machine for cutting Loaf Sugar.*—Patented March 25, 1856.

The hopper A contains openings which are covered with wire so as to allow the brushes *a* a^1 to reach through. The endless band E carries the slabs of sugar into the second hopper D, in order to be cut into cubical pieces.

Claim.—1st. The application and use of two or more rollers B B^1, having brushes *a* a^1 around their circumferences and acting upon both sides of slabs of sugar for the purpose of cleaning off the dust adhering to the same by the process of sawing, thereby reproducing the appearance of the crystals, as described.

2d. We claim the application of drums or rollers F F^1, connected together by gearing, having steel knives *n* inserted and attached around their circumference, forming squares and corresponding to each other, and acting on both sides of sugar-slabs simultaneously, like pincers, for the purpose of cutting up said slabs into regular cubical morsels, in the manner specified.

No. 14,740.—HENRY H. SIBLEY.—*Improved Conical Tent.*—Patented April 22, 1856.

The tent is pitched by means of a single pole, arranged with an iron tripod, so constructed that the legs shall work upon hinges and fold against the pole. To assist the escape of smoke a triangular piece of canvass, with an eyelet-hole in each angle, is fitted by one angle to the pin on the top of the pole, the other angles are secured by means of cords to the tent-pins.

Claim.—1st. So constructing the tripod, or its equivalent device, attached to a single pole, as to admit of easily building a fire.

2d. Constructing the tent with its hood and cowl, in combination with the door and half door or opening, to effect ventilation and the escape of smoke.

No. 15,378.—JOSEPH HYTER.—*Fly Trap.*—Patented July 22, 1856.

The flies enter the trap through the passage B, and after satisfying their wants from the bait seek to escape; and being attracted by the strong light from the glass back *d* and glass top *c*, they attempt to rise under the latter; when, by means of its inclination, they are precipitated into the trough D and are drowned.

Claim.—A trap for catching flies, having an opaque front and bottom *a b*, inclined transparent back *d*, small front decoy passage B, grooved bait board C, and trough D, substantially as set forth

No. 15,464.—Samuel Arnold.—*Fly Trap.*—Patented August 5, 1856.

The box A is covered with two pieces of cloth F, to which are fastened two cords M M of India-rubber, extending diagonally across the box. To set the traps, the loops N N are hitched over the triggers D D, which are fastened to the lever B B of the fulcrums *e e*. The bait will attract the flies to the bottom of the box A, and by pressing the lever E upwards, the triggers D will be depressed below the top of the box, the loop N N will slip off, and the elastic cords M will close the cloth over the flies. The slide H is then drawn across the box by means of handle K, till it arrives at slide L, which is drawn by means of handle P towards the aperture O of the receiver T, thus forcing the flies into said receiver, where they are submerged in soap-suds.

Claim.—The mechanical arrangement of box, jar, springs, lever, slides, and covering, described for the purposes set forth.

No. 15,752.—Samuel Arnold.—*Fly Trap.*—Patented September 23, 1856.

The flies will enter the cylinder C through the perforations *g*, being attracted by the bait in the cylinder; and when a sufficient number of flies are collected in the cylinder, the cylinder C is caused to revolve by giving a twirl to the rod of the piston D, and by depressing the spring-catch K the piston is caused to descend, and the flies are caused to descend into the soap-suds in the glass vessel.

Claim.—1st. The employment of the revolving perforated and grooved hollow cylinder C, applied in connexion with the reticulated piston D, and glass vessel B, substantially as and for the purpose set forth.

2d. The arrangement for retaining the piston elevated while the flies are being entrapped, in connexion with the device for releasing it when necessary, substantially as set forth.

No. 15,848.—George Gilbert.—*Fly Trap.*—Patented October 7, 1856.

The surface of the cylinder B is covered with a substance to attract the flies, and motion being imparted to said cylinder in the direction of the arrow, the flies are carried through the space D, and are prevented from escaping by the bar *h;* they then fly upwards, attracted by the light which passes through the screen *d*, and are prevented from escaping below by the screens *e*.

The inventor says: I disclaim the use of floats, ledges, or any other projections on the surface of the cylinder. I also disclaim the use of a movable cleaner or wiper of any description whatever to remove the flies from the surface of the cylinder, or to force them into the box or any other receptacle, as neither projections nor cleaners are needed or used in my manner of constructing and using the fly trap.

I *claim* the combination of the revolving cylinder with the screens or wire work, when the whole is constructed, arranged, and combined substantially as described.

No. 16,217.—Levi Van Hoesen.—*Trap for Catching Fish, &c.*—Patented December 9, 1856.

The fish in snapping at the bait on plate *j* disengages the notch *h* in the bar F from the pin *i* in the back part of the half sphere *b*, and the jaws B are forced towards each other by the spring D, the fish being caught between them.

The inventor says: I do not claim separately, or in themselves considered, two jaws connected with a spring, for similar devices are employed in various kinds of traps.

I *claim* forming the two plates C C of the jaws, and the stem or headpiece A, with portions of hollow spheres *d d b*, substantially as shown, for the purpose of protecting the bait when the jaws are sprung, as described.

No. 14,531.—Samuel Beaumont.—*Self-Setting Rat Trap.*—Patented March 25, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—Attaching the door H to the platform C, and supporting said platform when elevated or inclined, by means of the swinging rods or arms D, which are connected to the bait hook F by the levers E E. The above parts being arranged substantially as shown, or in an equivalent way, and having springs G J attached, so that the platform, when the animal nibbles the bait, will have its support drawn from underneath it, and be allowed to descend and close the door H; the door and platform rising to their original position, when the animal passes off the platform into the compartment *e* of the box.

No. 14,336.—John Goodyear, Jr., and Thomas J. Berry, assignors to Themselves and William M. Porter.—*Improved Roach Trap.*—Patented February 26, 1856.

The bait is placed in a trough D; the insect entering through tube C upon fall B approaches the bait, when its weight will tilt the fall, (see B^1) and the animal will fall into the retaining chamber A^1.

The inventors say: We do not claim the falls, tubes, or boxes, separately considered; nor do we confine our claim to the precise form and construction of the body of the trap, nor to the precise number or form of the tubes and falls, as these may be varied to suit circumstances.

But what we *claim* is, the tubes C C and the fall-box B, when the same are arranged and operated together substantially in the manner and for the purposes set forth and described.

No. 14,612.—Liveras Hull.—*Improved Machine for Tapering Whalebone for Whip-Handles.*—Patented April 8, 1856.

A wedged strip of whalebone is placed with its narrowest end between the rollers *a a* and under rollers N N, which keep it close to the

bed A. As the whalebone is moved between the rollers it will move the rollers together with the slides I apart, so as to produce a corresponding elevation of the cutter-cylinder K by means of the levers G E, friction-rollers D, and plate C, to which latter the frame L of the cutter-cylinder is fastened; the whalebone will thus be reduced to a tapering form. The spring U serves to insure the approach of the slides I I after the whalebone has been drawn out.

Claim —Combining with the cutter-cylinder and the bed-plate of the machine mechanism to operate against, and to be operated by, the sides of a stick of whalebone, and so as to control or regulate the vertical movements of the rotary cutter-cylinder, as described.

I also claim constructing the cutter-cylinder and combining it with the plate G, in manner as described, or by such devices as will enable it to be moved endwise for the purpose as specified.

No. 14,669.—William H. Lyman.—*Improvement in Whip-Sockets.*—Patented April 15, 1856.

The nature of this invention will be understood from the claim and the engravings.

Claim.—The application of a piece of sheet India rubber A to the common whip-stock, so as to secure the whip to its place and to prevent dirt, moisture, and other injurious substances from entering the socket and causing damage to the whip.

APPENDIX.

[The cases contained in this Appendix were omitted in their proper places.]

I.—AGRICULTURE.

No. 15,819.—Luther Robinson.—*Improvement in Cultivators.*—Patented Seember 30, 1856.

As the machine moves forward, the cutters G cut the sod along its edges ready for the cutter H, which passes under it, and cuts and lifts it up thereby, and causes it to come in contact with the cutters J K K, and to be divided into four equal parts which escape at the rear of the machine, as follows: one half of the central portion remains undisturbed other than being loosened underneath, from being cut up, lifted, and allowed to fall a short distance; while the other half, one quarter of which is on the right, and the other quarter on the left of the central portion, comes upon the mould boards L, is inverted and thrown thereby so as to fall upon the central portion and form a hill and cover the seed as illustrated.

Claim.—Arrangement consisting of the vertical cutters G G J K K, horizontal cutter H, mould-boards L L, and seed-dropper D, said parts being placed in the relation to each other shown, substantially as and for the purpose set forth.

No. 15,334.—Charles W. Glover.—*Improved Cutting Device for Harvesters.*—Patented July 15, 1856.

Within each finger B there is placed a rocking cutter E fig. 2, having their cutting edges at *b* and b^1, and oscillating slightly in the grooves *c*. The front ends of the cutters E are provided with projections *e* fitting in recesses *f* in the fingers. As the teeth *a* of the sickle C work back and forth over the cutters E, the edges *b* and b^1 will bear alternately against the cutting edges of the teeth *a*: for instance, when the sickle is moving in the direction of the arrow, the edge *b* will bear against the cutting edge 1 of the teeth *a*, and when moving in an opposite direction, the edges b^1 will bear against them; thus the edges act similar to a pair of shears, not being liable to become clogged.

Claim.—The oscillating or rocking cutters E, placed within the fingers B, and used in connexion with the sickle *c*.

No. 16,216.—Marshall Turley.—*Improvement in Prairie Ploughs.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engraving.

Claim.—The arrangement of the standard mould-board and side-cutter K, with regard to each other and to the other parts of the plough, so that they will operate as set forth and explained.

No. 16,218.—George Watt.—*Improvement in Ploughs.*—Patented December 9, 1856.

The nature of this invention will be understood by reference to the claim and engravings.

Claim.—The curved standard, when its front or concave side is rounded off, in combination with the undulating lines *x x x*, extending from the point of the plough to the tail of the mould-board, and when formed by the intersection of the two curvilinear surfaces of the mould-board and the standard.

No. 14,270.—Charles Morgan, assignor to Samuel Emlen.—*Improvement in Potato Planters.*—Patented February 12, 1856.

In order that the pieces of potatoes may be stirred up and become so situated in the hopper as to be easily penetrated by the fork, the plunger S receives a vertical reciprocating motion. The plunger is made to rise at the time the fork *m* is withdrawn, and the projection U covers the opening in the hopper. It will be understood from the engravings how the fork and plunger are connected together and work from the eccentric rod *i*.

The inventor says: I do not desire to claim especially the use of forks in potato planters for extracting the seed from a hopper, as such is described in the specification of Enoch Wood, January 10, 1845; but I *claim* the fork *m* and plunger S with its projection U, in combination with the hopper H, said fork and plunger being operated simultaneously, substantially in the manner and for the purpose set forth.

No. 16,212.—Edwin Moore.—*Improvement in Seed-Planters.*—Patented December 9, 1856.

As the machine is moved along, the shares *f* enter the ground, and cause the hub C to rotate. As the hub C rotates, the orifices of the passages *g* pass underneath the holes *a* in the disc E, which is rotated by the cogs *h* on the plate I, acting against the cogs *i* on the disc E; and the seed passes from the holes *a* through the hole *d* in the plate F, and into the hollow-arms H.

The inventor says: I do not claim the hollow arms R, through which

the seed passes from the hopper; for hollow-armed wheels have been previously used for that purpose. Neither do I claim operating the distributing device by means of radial rotating arms or rods penetrating the ground, for they have been previously used as a specific device for that purpose.

But I *claim* the hollow-arms H, provided with flaps *e*, and beaks or shares *f* at their ends, the arms being attached to a hub *c*, provided with passages *g* and cogs *h*, and the perforated disc E, and cut-off plate F, underneath the hopper D, the whole being arranged as shown and described, for the purpose set forth.

II.—METALLURGY.

No. 15,588.—John T. Willmarth.—*Improved Machine for Swaging Iron.*—Patented August 19, 1856.

This invention consists in mounting the faces of two hammers, one on each side of a rocking-frame *d*, which, being caused to vibrate on shaft *c*, and strike a blow alternately on opposite sides, is operated upon by means of eccentrics *j* on shaft K.

Claim.—Mounting the hammers on opposite sides of a rocking-frame, operated by eccentrics, or their equivalents, substantially as specified, in combination with the anvils placed on opposite sides of the axis of vibration of the said rocking-frames, as described, and for the purpose specified.

No. 15,632.—Daniel N. Baird, assignor to Nathaniel Potter.—*Improved Brace.*—Patented August 26, 1856.

The nature of this invention will be understood from the claims and engravings.

Claim.—1st. Inserting the mandrel B in the chamber in the shank of the brace; this I claim in combination with the washer F, set-screw G, and thumb-piece D, arranged in the manner described, and for the purpose set forth.

2d. I claim the manner of attaching the head of the brace to the spindle L, by means of the thumb-nut *o* and collar N; this I claim in combination with the chamber that receives the collar and screw of the thumb-nut O, in the manner substantially as described, for the purpose specified.

X.—LAND CONVEYANCE.

No. 14,678.—Joseph Summers.—*Improved Wheel Hub.*—Patented April 15, 1856.

The flanch *c*, which radiates from the centre pipe box *b*, and is cast in one piece therewith, has a series of alternating flaring grooves *d d* cast in opposite sides thereof. The flanched half hubs *a* and *e* fit on to the ends of the pipe box *b*, and the flanches which radiate from the inner ends of said hubs correspond in size with the flanch from the centre of the pipe box. Flaring grooves *f f*, in the half-hubs *a* and *e*, form, with the grooves *d d* of the pipe box flanch *c*, angular holes for the reception of the spokes.

Claim.—My improved wheel hub, composed of the pipe box *b* and its radially grooved central flanch *c*, combined with the half hubs and their radially grooved flanches, and with the embracing band *g*, substantially as herein set forth.

XI.—HYDRAULICS.

No. 14,247.—John L. McPherson and Jacob O. Joyce.—*Improved Diaphragm Pump.*—Patented February 12, 1856.

The nature of this improvement will be understood from the claims and engravings.

Claim.—1st. The application to pistons of pumps of a corrugated diaphragm C, which admits of greater length of stroke without overstraining the material, substantially as described.

Also, in combination with a corrugated diaphragm, the flaring or rounded followers A, so that they will approach and take up the folds of the diaphragm in accordance with the length of the stroke given to the piston-rod, as described.

Also, the wedge-shaped valve G, which lies loose in its seat, and rocks on its rounded base to open or close the passages I L, as herein set forth.

LIST OF RE-ISSUES AND CLAIMS FOR 1856.

No. 337.—*Improvement in Ploughs.*

What I claim is, constructing a mould-board and moulding part of the share of a plough, so that a horizontal line drawn at any height across their working side shall describe a convex arc of a circle, and any line drawn across its working side at right angles to the base, shall also describe the convex arc of a circle separately or connectedly, the whole or either part substantially as set forth.

SAMUEL HULBERT.

No. 338.—*Improvement in Cotton Presses.*

What I claim is, the recesses or slots *j j* in the hubs of the toothed wheels on which the chains that raise the follower work, for receiving the lower ends of the chains when wound up, and bringing the pressure nearer the centre of the bearings of the wheels, substantially as described.

NATHAN CHAPMAN.

No. 339.—*Machine for composing and Setting Types.*

What I claim is:

1st. The composing wheel W, as herein specified, and for the purposes set forth.

2d. The means above described for delivering the types from the various cells to the jaws of transits or their equivalents, fixed to a wheel or other rotary apparatus.

3d. The construction and application of the transits as described, or their equivalents, attached to a wheel or other rotary motion, to convey the types from the slides or their equivalents, to the galley or composing chamber.

4th. The devices for effecting the delivery of the types from the cell of small *j's*, and those cells which are similarly conditioned in the case of italics.

5th. The construction and arrangement of the lever G and its head *i*, as described, and for the purpose set forth.

6th. The construction and arrangement of the justifying bar *a*, in combination with the cam-ratch *b*.

7th. The index N^1 fixed to the bar *a* by which it is operated, in combination with the index plate K^1.

8th. The application of the detent *g*, operating as described.

9th. The construction and arrangement of the lever O in combination with the "rule" or line register M, as described.

10th. The tappet *t* constructed as described, so as to effect the horizontal and vertical changes of the lever O.

11th. The detents W so applied as to retain the slides R when they are thrown back after delivering a type.

WM. S. LOUGHBOROUGH.

No. 340.—*Improvement in Machines for Washing Paper Stock.*

What I claim is, the employment of a wire gauze or reticulated cylinder with open ends and placed with its axis in a horizontal or nearly horizontal position, and with its lower part revolving in a trough of water, substantially as herein described; but this I only claim when the said cylinder is provided on the inside with hooked or bent teeth for the purpose of catching and elevating the paper stock in separate portions to drain the water out of it and drop it in the water, and thus subject it to the several operations required as it is moved from end to end of the cylinder, as set forth.

And I also claim in combination with a reticulated cylinder armed with hooked teeth, and rotated in a trough of water, substantially as described, for the washing of paper stock, the employment of inclined curbs, substantially as described, at the delivery end of the cylinder, for the purpose of regulating the delivery of the paper stock, as set forth.

HORACE W. PEASLEE.

No. 341.—*Improvement in Track-Clearers to Grass-Harvesters.*

What I claim is, the rolling cone G moving on the axis I at an acute angle to the finger-piece and furnished with a joint-clearer J, as described, and for the purpose of clearing a track in the cut grass.

ABNER WHITELEY.

No. 342.—*Improvement in Machines for Threshing and Winnowing Grain.*

What I claim is:

1st. The peculiar construction of the chaff-screen Q^1, which consists of a thin plate of metal punched with a semi-circular instrument, for the purpose of producing semi-circular apertures, and at the same time leave the parts of the metal thus partly punched from said plate overhanging said apertures at an angle of thirty or forty degrees, or at any suitable angle greater than that of the plate; for the purpose of allowing the grain to pass through said apertures, and at the same time prevent the chaff and straw entering them and thereby preventing choking.

2d. The combination of the system of screens, the blower, and the elevators X, for cleaning and conveying the cleaned grain to the granary or other place of deposit, substantially as herein set forth and represented.

ANDREW RALSTON.

No. 343.—*Improvement in Sewing Machines.*

What I claim is, 1st, the combination of the spring clamp D with the feeding bar or dog *f*, constructed, arranged, and operating together against the cloth on its one side or surface, substantially as set forth.

2d. The arrangement for effecting the feed; that is to say, setting the arm F of the feed finger at such angle to the table that the diagonal direction of the thrust will cause the reciprocating motion imparted to the upper end to produce, in combination with the table, a lateral motion of the feed finger as well as the requisite pressure for griping and feeding the cloth, as set forth.

T. J. W. ROBERTSON.

No 344.—*Improvement in Apparatus for Dissolving Silica.*

What I claim is, the method of taking the liquid from the upper part of the charge in the boiler or digester containing the silicious matter and the solvents thereof, passing it through a heater, and discharging the vapor thereof in the lower part of the charge, substantially as described when this is combined with a boiler or digester provided with stirrers for stirring the charge, substantially as described.

BENJAMIN HARDING.

No. 345.—*Improvements in Sewing Machines.*

What I claim is, forming a stitch by each throw of the shuttle and corresponding motion of the needle; that is to say, making one stitch at each forward, and another at each backward, motion of the shuttle; this being effected by the needle in combination with the shuttle, both constructed, arranged, and operated as herein described, or in any other mode substantially the same.

ALLEN B. WILSON.

No. 346.—*Improvements in Sewing Machines.*

What I claim is, the method of causing the cloth or material to be sewed in a sewing machine, to progress regularly by the joint action of the surfaces between which it is clamped and which act in conjunction, substantially in the manner and for the purposes herein specified.

2d. I claim holding the cloth or other material at rest by the needle, or its equivalent, in combination with the method of causing it to progress regularly, the whole substantially as herein set forth.

3d. I claim arranging feeding surfaces, substantially such as are herein specified, in such relation to the needle, as herein set forth, that they, or one of them, shall perform the office of stripping the cloth or material from the needle as it rises or recedes from it, as herein described.

4th. I claim so mounting and attaching one of the feeding surfaces to some other part of the machine, that it may be removed or drawn away from the other surface at pleasure, substantially in the manner and to effect the objects herein set forth.

ALLEN B. WILSON.

No. 347.—*Improvement in Grinding Mills.*

What I claim is, 1st, in combination with the cylinder and concave, the cap H, provided with spiral ribs on its under side for carrying forward the ground material towards the discharge end, and thus to make room for that which follows and prevent clogging or choking, substantially as described.

2d. I also claim, in combination with the cylinder, concave, and cap, the fingers *e*, for agitating the material and causing it to pass more readily in between the cylinder and concave, substantially as described.

AMORY FELTON.

No. 348.—*Improvement in Harvesting Machines.*

What I claim is:

1st. The retracting divider, substantially as described.

2d. The grain guard, substantially as described.

JOHN REILY.

No. 349.—*Improved Tonguing and Grooving Machine.*

What I claim, is.:

1st. Giving a lateral movement to either of the edge cutters by any suitable arrangement of mechanical devices, while the board is being fed through the machine, so as to adapt the edge cutter to any taper of the board.

2d. I claim arranging the box or bearing of the shaft of either of the edge cutters, so as to slide laterally on a rail; and connecting said box or bearing to a sliding guide-bar d^1, which bar is governed or regulated in its movements by the edge of the board, and kept up against said edge by means of a weight operating on it, (so as to press it laterally) through the medium of a rack and pinion, as herein before set forth,

the mechanical arrangement and operation being substantially as herein above specified.

3d I claim the combination of the sliding bolts r^1 s^1 with the turning rod o^1 o^1, (having right angular arms n^2 n^1, p^1 p^1,) and pawl l^1, and ratchet-wheel k^1, on the end of the shaft, which the weight i^1 turns or revolves; said combination being arranged substantially as herein before set forth. and for the purpose of permitting or checking the operation of said weight i^1 upon the sliding guide bar d^1, as herein before specified.

CHARLES W. BROWN.

No. 350.—*Improvement in Polishing Stone, Metals, &c.*

What I claim is, a process by which the friction of the surface of the rotating polishing wheel upon the surfaces of the articles operated upon will impart rotary movements to said articles, substantially in the manner and for the purpose herein set forth.

ALBERT BROUGHTON.

No. 351.—*Improvement in Spike Machines.*

What I claim is, the friction roller *f* and lever I, to which the cutter *k* is attached, when said roller and lever are placed upon adjustable centres, or pivots, or rods *e i*, in combination with pointing dies inserted in the jaws, arranged substantially as shown, for the purposes specified.

A. M. GEORGE.

No. 352.—*Improvement in Machines for Sewing or Stitching Straight Seams.*

What we claim is:

1st. The feeding of the article to be stitched automatically forward to the needles, so as to determine thereby the length of the stitch, by means of the apparatus herein described, or any known mechanical equivalent therefor.

2d. The employment of a weight or its equivalent to draw out the thread, substantially as herein described.

3d. The combination of pincers to draw the needles and thread through the article being sewed.

4th. For the purpose of working with two needles at the same time, I claim giving to the pincers a simultaneous lateral movement, to change the needles from one pair of pincers to the other, as described.

5th. The stop motion, consisting of an arrangement of apparatus described, for stopping the machine when the thread breaks or becomes too short.

ISAAC M. SINGER.
EDWARD CLARK.

No. 353.—*Ticket Register for Railroad Cars, &c.*

What I claim is, providing a suitable box A for holding the tickets and employing and arranging a distributing lipped slide *c d* upon the bottom of said box or underneath the tickets, in combination with the employment and arrangement on top of the tickets of a spring or weighted follower D, substantially as and for the purpose set forth.

I also claim providing the extension or small box E and inclined way *n*, substantially as and for the purpose set forth.

WILLIAM APPERLY.

No. 354.—*Improvement in Harvesting Machines.*

What I claim is, a draught bar or tongue, constructed with an arm G, extending backward over the main frame, and connected with a suitable device for supporting it at various heights, whereby the cutter can be conveniently adjusted to different heights by an attendant on the main frame, substantially as herein set forth.

JOHN H. MANNY.

No. 355.—*Improvement in Sewing Machines.*

What I claim is:

1st. The making of a seam with a single thread, by the combination of a single needle, forked hook, and expanding lever, operating substantially in the manner and for the purposes herein specified.

2d. The forming or making of a seam from a single thread, by the running of a loop of the thread through the material to be sewn, the running of a second loop through the material, and pulling the first loop through the second, the running of a third loop through the material, and through the first named loop, the carrying of a fourth loop through the material, and putting the third through it, and so on; putting the first loop through the second and around the third, the third loop through the fourth and around the fifth, and so on, forming the belaying double-loop stitch herein described, in the manner set forth.

3d. The feeding of the material to be sewn, by means of a vibrating piercing instrument, whether said instrument be the needle itself or an independent instrument in the immediate vicinity thereof, substantially as herein described.

WILLIAM H. JOHNSON.

No. 356.—*Improvement in Spark and Gas Consumers.*

What I claim is, the combination of the receiving case, shield plate or head, and filterer, with and over the top of the sectional chimney with enlarged base and smaller section in the smoke-box, to convey off and arrest the sparks without pernicious effect, as described.

Also, I claim increasing the base of the chimney beyond the diameter

of the upper end of the section extending vertically to near the lower horizontal flues and bottom of the smoke-box, to aid in the generation of steam, as described.

Also, I claim the trumpet-mouthed tube over the chimney, said tube being divided into two or more parts to collect sparks, and direct them inwardly by aid of the opening between said parts, as described.

Also, I claim the manner in which I connect the case at the top of the chimney, with the furnace or fire box, by means of the tubes or pipes G G and H, the cases L L, and the openings thence into the fire-box or furnace, to carry the sparks and gas to the furnace to be consumed, as described.

DAVID MATTHEW.

No. 357.—*Improvement in Spark Arresters.*

What I claim is, the combination of the cone and deflecting head with the wire gauze inside of the outer case, to deflect the steam gases and sparks downwards, retain the sparks, and allow the expanded steam and gases gently to escape through the gauze.

I also claim forming the chimney of sections, with the base of the upper section C, enlarged beyond the diameter of the top of the section E below it, substantially as described.

DAVID MATTHEW.

No. 358.—*Improvement in Grain and Grass Harvesters.*

What I claim is:

1st. Changing the angle of the fingers and cutters of reaping and mowing machines while the machine is in motion and the finger piece resting on the ground as described, and for the purposes set forth.

2d. I do not here claim oscillating the finger-piece about an axis within itself irrespective of the relations between the main frame and the master wheel shaft; but I do claim so constructing the machine, (as described or otherwise, the result being substantially the same,) that the driver is enabled while the team is in motion, the boxes of the master wheel shaft being rigidly connected with the main frame, to change the angle of the fingers and cutters without moving the finger-piece from the ground.

ABNER WHITELEY.

No. 359.—*Improvement in Machinery for Splitting Match Splints.*

What I claim is:

1st. The use of the arrangement of the four cutters, arranged and operating substantially as herein before set forth, in combination with the cutter frame or box, for the purposes herein before described; and

also the use of the cutters and cutter frame, arranged and operating as hereinbefore described, in combination with an adjustable cap or clearer plate for the purpose of holding the blocks of wood while under the action of the cutters, substantially as herein before described.

2d. I also claim the jointed levers, or their equivalents with or without springs at their backs, for the purposes herein before set forth, and their combination with the cutters and crank motion or other equivalent device, for working or operating a crimper for crimping or matting the surface of blocks of wood.

3d. I also claim the use of the crimping or compressing levers or their equivalents in combination with the bed board M, for crimping or matting the lower surface of the blocks substantially as hereinbefore described.

4th. I also claim the use of the shafts R and ratchet feed wheels or equivalents, for the purpose of feeding the blocks through the machine, in combination with the adjustable cap or clearer plate and bed board, when used for the purpose of splitting blocks of wood.

BENONA HOWARD, *Assignee of*
LEWIS SMITH.

No. 360.—*Improvement in Railroad Cars.*

What I claim is the construction of the frames of railroad cars, substantially in the manner and for the purposes specified.

B. J. LA MOTHE.

No. 361.—*Improvement in Machines for Making Nuts, Washers, &c., &c.*

What I claim is:

1st. The use of the die T and die-box M, for severing the blank, the close die-box in combination with the dies and bracket Q for pressing, and the punch L for perforating the same during the pressure; the whole operating conjointly, as herein described, for making nuts or washers at one operation.

2d. The manner substantially herein before described of so arranging the dies, in relation to the punch, that any excess of iron in the blank shall be forced into the path of the punch, thus securing the compression of the nut without risking the breaking of the machine.

WILLIAM KENYON

No. 362.—*Improvement in the Machine for Forming the Web for Cloth, of Wool, Hair, or other suitable substance, without Spinning or Weaving.*

What I claim is, the combined use of them, as herein described, for the purpose of crossing the fibres of the material of which cloth may be made, in the manner and on the principle herein described, and the

new machinery necessary to effect that object, particularly the comb-carrier, the means described for severing the weft or web, and the fallers for placing the weft upon the warp, operated substantially as herein described.

I also claim the depositing of the weft in separate sheets, edge to edge, upon the continuous sheet of warp, substantially in the manner and for the purposes described.

STILES CURTIS, *President.*

No. 363.—*Improvement in Sewing-Machines.*

What I claim as the invention of said Turner is, the arrangement of a *hook*, or hook-needle, underneath, and so as to work up through the feeding-bar L, in combination with the arrangement of the presser M above the feeding-bar, and so as to press downwards towards it, substantially in the manner as above described, such enabling me to obtain an important advantage in operating by the single chain-stitch sewing-machine.

And, as the invention of the said Turner, I also claim, in a chain-stitch sewing-machine, arranging and operating the awl and the hook-needle, as described; that is, so that they may not only pierce in opposite directions the material to be sewed, but be withdrawn in opposite directions therefrom.

And, as the invention of the said Turner, I also claim in combination with the mechanism for giving the vertical movements to the needle, the slot *a b c* and the screw or pin F, or mechanical equivalents therefor; for producing reciprocating semi-rotative movements of the needle, during the vertical movement of it, substantially in the manner and for the purpose as above described.

ELMER TOWNSEND.

No. 364.—*Improved Arrangement of Means for Working and Stopping Chain Cables.*

What I claim is, the arrangement of the capstan, the removable rollers, and the sockets for said rollers, in such a manner, and having such relations to the hawse-holes, chain-locker, deck-pipes, and under-lifting stoppers, that a chain cable can be continuously hove in by means of said capstan and rollers, or be directly run out of the lockers without any previous overhauling, substantially as herein set forth.

I also claim the flaring and radially flanched annular recess in the capstan, when it is given such a shape, that in handling a chain cable, the series of cavities in the faces of said recess will so perfectly adapt themselves to the varying lengths and widths of the links of the cable, that it can be safely and securely handled when the cable has only a partial turn around the capstan, substantially as herein set forth.

I also claim the arrangement of the within described under-lifting

bow-stoppers and after-stoppers, by which more cable can gradually and controllably be given to a vessel whilst riding heavily at anchor, substantially as herein set forth.

THOMAS BROWN.

No. 365.—*Improved Sawing Machine.*

What I claim is, attaching saws to parallel rocking beams, by means of swivel bearings.

I also claim the reversible graduating scale-gauge in combination with the saw-table, substantially as set forth.

WILLIAM P. WOOD.

No. 366.—*Improvement in Printing Presses.*

What I claim is:

1st. A rotating reciprocating platen, operating substantially as described, for the purpose specified.

2d. The arrangement of two side arms, so combined as to form a frame to carry the inking-rollers both forward and backward over the form for each impression.

3d. Throwing a *vibrating bed* from the point of its receiving the inking-rollers, as described, directly to the impression, by means of toggles arranged as shown, or in an equivalent way; so that said bed, after receiving the impression, will be allowed to recede or fall back to its original position, by its own gravity.

4th. The combination of the vibrating bed with the roller frame, composed substantially as set forth.

5th. The grooved cam-shaped guides, or their equivalents, for throwing the frisket, or its equivalent, in the proper direction, and holding it in the desired position during the intervals of rest given to the platen, for the purpose specified.

GEORGE P. GORDON.

No. 367.—*Improved Mode of Constructing Walls and Floors of Cellars.*

What I claim is, the mode herein described of forming walls and floors by combining into one mass the water cement and asphaltum, or its equivalent, by means of the solid building materials, as herein fully set forth, by which the asphaltum, or its equivalent, is caused perfectly to adhere to the bricks or stone of the wall, built with a water cement, which also adheres to the same stone or brick, as above described.

A. R. MOEN.

No. 368.—*Preparation of Oil Ground to receive Photographic Impressions.*

What I claim is, the mode of preparing and rendering oil (or oleaginous) bodies, grounds, or surfaces, impressible or sensitive to the photographic art, by the temporary destruction or chemical change of the oil or oleaginous matter, on the immediate surface only, by the use of spirits of wine and alkaline solution or their equivalents, and after fixing the impression by the use of hyposulphate of soda, the use of dilute acid, by which last application the alkalies are neutralized, and the oil restored with the impression permanent upon the surface.

JOEL HAYWOOD TATUM.

No. 369.—*Improvement in Machines for Planking Hat Bodies.*

What I claim is, the use of an endless table or band, having a differential or vibratory forward revolving motion, in combination with a rubber or presser, operating substantially as herein before set forth; whereby a forward, vibratory, rolling, and pressing motion is given to the *roll* of hat bodies or felt for sizing it up, and, at the same time, carrying it through the machine, made and operating substantially as herein before set forth.

ALBERT SPENCER,
ALVE E. LAING, *Assignees of*
PHINEAS EMMONS.

No. 370.—*Improvement in Self-Sealing Preserve Cans.*

What I claim is, the employment of elastic packing, arranged in and retained by a groove of an acute form, or whose sides are in close proximity, in the manner and for the purpose above described.

ROBERT ARTHUR.

No. 371.—*Machine for Cutting the Threads of Wood Screws.*

What I claim is:

1st. In combination with the shaft or mandrel which gives the rotary motion to the screw blank, the employment of the rotating wedge-formed cam, or the equivalent thereof, for determining the pitch of the thread, and for permitting the return motion to repeat the operation, substantially as described.

2d. Causing the chaser or cutter at each successive cut to approach nearer to the axis of the screw blank, by means of a revolving conical cam, which, at each successive operation, acts by a greater radius, substantially as described.

3d. Governing the motions of the chaser or cutter to make the core

or body of the screw of a conical or tapered form along the whole or any part of its length, by combining therewith a cam of gradually enlarged diameter, substantially as described, the form of such cam depending on the form intended to be given to the core or body of the screw.

4th. Combining the cam which determines the form of the core or body of the screw (to make it tapering or conical in whole or in part) with the chaser or cutter by means of a rock-shaft and adjusting lever, substantially as herein described, the said adjusting lever being interposed between one of the arms of the rock-shaft and the face of the cam, so that, by the use of a set-screw or other analagous device, the cutter or chaser may be readily set, as described.

5th. Shifting the cam which determines each successive cut of the chaser or cutter, by combining therewith a ratchet movement, operated by an eccentric or cam, the wheel of the ratchet being provided with pins which operate a lever connected with the cam to shift, substantially as described.

6th. Disconnecting the shaft or mandrel from the driving power at the end of each complete operation of the machine, by combining the clutch, or the equivalent thereof, with the ratchet, by means of an index-wheel or perforated rim, which, at the required periods, liberates or acts upon the connexions of the clutch to disengage it, substantially as described.

7th. Making the chaser or cutter for chasing or cutting the threads of wood screws by machinery with a groove of the form of the thread in its cutting face and in the direction of its length, substantially as described; whereby the said chaser can be sharpened by simply grinding off at the end, and without changing the form of the groove, and whereby, also, the said chaser cuts on both sides of the thread and finally on the edge thereof, as described.

8th. The combination of the screw-driver for holding and rotating the screw-blank with the tubular rest open at the side, to support the shank of the blank while being threaded, substantially as described.

CULLEN WHIPPLE.

No. 372.—*Improvement in Bellows for Musical Instruments.*

What I clam is, the combination of the reeds with an exhaust chamber of variable capacity and an air pump, whose action exhausts and rarifies the air therein, the exhaust chamber tending to expand with a force that will balance the rarification to be preserved in the chamber, for the purposes herein set forth.

J. CARHART.

No. 373.—*Improvement in Annealing Furnace.*

What I claim is, charging and discharging an annealing furnace in bulk, substantially in the manner and for the purposes set forth.

I also claim opening the bottom of the annealer for the purpose of discharging its contents and recharging it, as above set forth, or any mode analogous thereto.

I also claim the employment of a continuous heat, with an air-tight annealer, substantially in the manner and for the purpose described, by which iron wire can be annealed with the same facility as brass and copper, where the air is not required to be exhausted.

J. Joseph Eagleton.

No. 374.—*Improvement in Spirit Levels.*

What I claim is, the spring-catch (or known equivalent thereof in this combination) to hold the level in place upon the square or ruler in combination with the bearers, the latter being so formed in respect to the level that when they are placed upon a horizontal line the bubble will be in the middle of the glass, and thus a horizontal or a vertical line may be ascertained from a ruler or from a square when said level is attached, substantially as herein set forth.

S. J. Sherman.

No. 375.—*Improvement in Securing Pinions, &c., of Watches in Lathes.*

I claim the employment of adhesive cement for securing staffs and pinions of watches, and like articles of small dimensions, for lathe operation, in combination with a chuck A, having a female centre *a* therein, either with or without the tube B, or its equivalent, as described and set forth, or any device substantially the same.

James M. Bottum.

No. 376.—*Improvement in Grain and Grass Harvesters.*

What I claim is:

1st. Extending or widening out the guard finger, substantially as herein described (and represented by the overhanging bars *m m*, fig. N) for the purposes herein set forth.

2d. Dropping that part of the frame (herein called the clamp) down to the ground in the manner above set forth, when constructed, arranged, located, and used, substantially as herein described.

3d. The mould-board L, constructed and used for the purpose and substantially as herein set forth.

4th. The arrangement and combination of a right-angled stanchion made of wood or metal, with a pivotal motion on the frame-work of the machine, and supporting upon its upright part a lever made of wood or metal, with a pivotal motion on the said stanchion (or post), to which

lever is attached a rake. By the combination and operation of these two pivotal motions of the stanchion and lever as set forth, a direct line motion may be given to the rake when needed, and also a circular motion; so that a person may remove the grain from the platform in bundles, and sit or stand on the machine near the driving wheel, as herein described.

ELIAKIM B. FORBUSH.

No. 377.—*Improvement in Sowing Machines.*

What I claim is, the manner in which I have combined the stirring-rod or bar H with the dropping-bar or vibrating-bar *m m*, and in combination therewith the guage-rod *c c* with its index for regulating the amount of seed to be dropped, in the manner above described.

I also claim the lever *e* with a movable pin or fulcrum operated by the zig-zag motion for working the vibrating-rods, and regulating the quantity per acre to be sown by increasing or decreasing the motion of the vibrating-rod, as set forth.

PIERPONT SEYMOUR.

No. 378.—*Improvement in Machinery for Filling Seine Needles.*

What I claim is, imparting to the needle and to the arm or equivalent therefor the motions substantially such as herein described, for carrying the twine, cord, or thread into the eye of the needle, around the tongue, and then out of the eye, substantially as described, and by the means specified, or equivalents therefor.

H. M. GLINES.

No. 379.—*Improvement in Cotton Gins.*

What I claim as the invention of R. A. L. McCurdy is, the revolving screen situated in the hopper or "roll box," arranged and operating substantially in the manner and for the purpose herein set forth.

In combination with the revolving screen, I also claim the spirally winged shaft, revolving within said screen, and operating substantially in the manner and for the purpose specified.

DAVID G. OLMSTEAD.

No. 380.—*Improved Metallic Pen.*

What I claim is, reducing or thinning the sides of the pen at *a* between the shoulder A and split *c;* whereby the advantages above stated are freely attained, and the metallic pen made to possess the qualities of the quill pen.

A. WM. RAPP.

No. 381.—*Machine for Raking and Loading Hay.*

What I claim is, the combination of rake S with spring guard-plate S^1 and fork P, the whole being arranged and operated in the manner and for the purpose set forth.

JOSEPH SMITH.

No. 382.–*Improvement in Operating Valves in Direct-Acting Steam-Engines*

What we claim is, giving to the valve the whole or part of the movement necessary to effect the change in the direction of the movement of the engine piston, by means of the steam acting upon a piston E, which is fitted to work perpendicularly to the valve in a cylinder D, forming a part of the valve driver, or device employed to drive the valve, and is supported against the pressure of steam by a rocker *e*, or its equivalent, by which it is caused to operate on the valve driver, substantially as herein set forth.

WILLIAM H. GUILD,
WILLIAM F. GARRISON.

No. 383.—*Improvement in Bagasse Furnaces.*

What I claim is, combining with the receiving chamber a square mixing or second chamber, whose hearth is substantially level with that of the receiving chamber B, separate and distinct from the heat conduit or flue which conducts the heat to the boilers, and located between the aforesaid heat conduit and the receiving chamber of the furnace, and combined with any bagasse furnace; for receiving the products of the burning bagasse, mixing mechanically, and perfecting the combustion of the gases thereof, after they pass out of the first or burning chamber, and before they enter the heat conduit, or flue, and thereby promoting the deposit of the solids, substantially as described, whether the said second chamber B is provided with a pit D or not.

I also claim the use and adaptation of the pit D, located in and combined with the second or mixing chamber B, as an auxiliary to increase the agitation and perfect the mixture and combustion of the gases, and also to promote the deposit of the solids, substantially as described.

SAMUEL H. GILMAN.

No. 384.—*Improvement in Photographic Pictures on Glass.*

What I claim is, the combination of balsam, or its equivalent, with positive photographic pictures on glass, and with the additional glass, by which they, with the balsam, are hermetically sealed, as described in the specification, and for the purposes therein set forth and for no other.

JAMES A. CUTTING.

No. 385.—*Improvement in Apple Parers.*

What I claim is:

1st. The combination of the spiral-groove *i*, the rack-bar P, and sector O, or their equivalents, for the purpose of moving the knife automatically, in the manner and for the purpose herein set forth.

2d. The combination of the spiral groove *i*, the lever R, and the sliding-bar W, or their equivalents, constructed and operating in the manner substantially as herein described, for the purpose of throwing the apple from the prongs after the paring is completed, as set forth.

3d. Giving to the knife a slight play around its axis, independent of the mechanism which actuates it, for the purpose herein set forth.

CHAS. P. CARTER.

No. 386.—*Machine fo Making Wrought Iron Railroad Chairs.*

What I claim is:

1st. The combination of two or more properly shaped dies, between which a chair blank is clamped prior to the cutting of that portion of it which constitutes the lips thereof, substantially in the manner and for the purposes herein described.

2d. I claim automatic shears in combination with properly shaped dies for clamping a chair blank and cutting the lips thereof, substantially as herein set forth.

3d. I claim such shears when they also act as benders, to complete the formation of a chair lip, by reason of their having a motion in two directions, substantially in the manner herein specified.

4th. I claim a double or parting clamp and die, substantially such as is herein described, so that a chair may be removed from the die upon which it is formed, as herein set forth.

5th. I claim discharging a chair from a double or parting die, or its equivalent, by their hooks or their equivalents acting to shove the chair off of a die, substantially in the manner herein described.

6th. I claim in combination two clamping dies, one of which acts as a former, and divides at proper intervals; shears which also act as benders, or their equivalents; and a discharging apparatus, acting in respect to each other substantially in the manner and for the purposes herein set forth.

WM. VAN ANDEN.

No. 387.—*Improvement in Reaping Machines.*

What I claim is:

1st. The sickle with its cutting edge when both scalloped and serrated.

2. Reversing the serrations on the edge of the sickle, in short sections, substantially as herein set forth.

3d. Constructing the guard-fingers in the shape of a spear head, for the purpose of affording a shoulder on each edge against which the

grain will be held, thus counteracting its tendency to slip from the action of the sickle, and forming an acute angled space in front of the sickle, to render the severing of the grain more easy and certain.

JONATHAN READ.

No. 388.—*Improvement in Reaping Machines.*

What I claim is:

1st. The combination with the platform of a reaping machine of a mechanical rake, which traverses said platform at intervals and draws off the grain gathered thereon, substantially as herein set forth.

2d. The combination with a mechanical rake of the roof or screen herein described, or the equivalent thereof, to intervene and keep the gavel of grain collected on the platform separated during its discharge by the rake from the grain just cut and falling towards the platform, thereby avoiding the scattering and entanglement which takes place when the grain passing off and that falling upon the platform are not kept separate.

3d. The combination with the roof or screen of a mechanical rake of a stripper or guard P^1 or P^2, or its equivalent, to sweep from the screen any grain which may have fallen upon it during the passage of the rake to and fro over the platform, substantially as described.

4th. Constructing the platform with slats or ribs for the grain to lie on, and intermediate spaces for the teeth of the rake to run in, to pass below the grain and thus avoid all danger of overrunning and imperfectly discharging it, as herein set forth.

JONATHAN READ.

No. 389.—*Improvement in Reaping Machines.*

What I claim is, the combination of the reel for gathering the grain to the cutting apparatus and depositing it on the platform, with the seat or position for the raker located and arranged substantially as described, to enable the raker to ride and to rake the grain from the platform and free the reel and cutting apparatus from obstructions, as described.

JONATHAN READ.

No. 390.—*Improvement in Reaping Machines.*

What I claim is, in combination with the main frame of the machine, hung or balanced on the supporting wheels, and the thills or tongue by which the horses draw the machine hinged to the said frame, a lever connected with or acting upon one, and extending to the driver's stand or seat on the other; so that the driver, who is the sole conductor of the machine, may from said stand by this arrangement raise or depress

the cutter at pleasure during the operation of the machine, for cutting grain at any suitable height above the ground or for passing over any intervening obstacles, substantially as described.

JONATHAN READ.

No. 391.—*Improvement in Reaping Machines.*

What I claim is, the arrangement of parts whereby a clear space is obtained and the grain discharged between the platform and the path of the driving-wheel before the latter has passed the discharged grain, as herein set forth.

JONATHAN READ.

No. 392.—*Improved Bomb-Lance for Killing Whales.*

What I claim is, the mode of sustaining the fuse rope in the fuse tube, and preventing the fire of the charge of the gun from passing by the fuse rope and into the bomb, viz: by metal or metallic plugs, or the equivalents thereof, cast around or made to closely encompass the fuse rope, after it has been inserted in the fuse tube, as specified.

And I claim so making or applying them to the shaft shank or to the body of the bomb, that not only may they be folded or moved down, so as to be capable of entering with the shaft the bore of the gun, but each have an elastic property or spring, such as will cause it to unfold or be thrown outwards, immediately after the projectile may be discharged from the gun; such wings being made of vulcanized India-rubber, or any substance or substances which may be deemed an equivalent thereto, inasmuch as such may possess the requisites, as above specified.

CHRISTOPHER C. BRAND.

No. 393.—*Improved Method of Hanging and Straining Reciprocating Saws.*

What I claim is, the manner or mode of hanging reciprocating saw-blades, by forming thereon, or by attaching to the ends and front edges thereof, ears or guide-flanges *n n*, figure 2, hook clamps *q q*, and shank devices *r r* T, figure 4; so that the tension or strain and the draft of the blades will be in a direct line, longitudinally through the base of the teeth and front edge of the blade, whereby the whole of the surface or the plate part of the saw-blade is left free, unstrained, and divested of all rigidity and stiffness, in the manner substantially as described.

I also claim the adjustable guide plates, with the slotted or grooved gauge pieces *g g*, figure 1, and *x y* X *y*, figure 3, substantially as set forth.

ISAAC N. FORRESTER.

No. 294.—*Harness-Saddles.*

What I claim is, making the upper or saddle part of harness-saddles of metal, giving the required form thereof by moulding, when such saddles are so formed, substantially as described, that the leather parts such as the skirts can be secured thereto without stitching, as set forth, or by equivalent means.

And I also claim forming the upper or saddle part and the under or crotch part in combination, so that the skirt and jockeys, if jockeys are used, will be embraced between them, and secured in the manner substantially as described, or by equivalent means.

JOHN T. DENNISTON.

No. 395.—*Improvement in Folding Life-Boats.*

What I claim is, the chain or chains, or their equivalents, as connected and arranged in relation to the stern and stern-posts, ribs, and central frame, and operated as herein set forth.

C. LOCHER.

No. 396.—*Improvement in Machinery for Making Hat-Bodies.*

What is claimed herein as the invention of the said Henry A. Wells, deceased, is, forming bats of fur-fibres, by throwing the fur in properly regulated quantities, substantially as herein described, against a section of the circumference of a perforated cone or other form, as the same is rotated to present in succession every part of the circumference thereof to the current of impelled fur, to obtain the required thickness of bat, substantially as described, in combination with the method of holding the fibres on to the cone or other form during the operation, substantially as described and for the purpose specified.

CHARLES ST. JOHN,
H. A. BURR,
A. H. WRIGHT,
JAMES M. RIBLET.

No. 397.—*Improvement in Rotary Pumps.*

What I claim is, the rotary eccentric piston, working within an oscillating barrel, with any arrangement of inlet and outlet passages, substantially as herein set forth; and this I claim, whether my invention be applied to a pump or a rotary steam engine.

JOHN BROUGHTON.

No. 398.—*Improvement in Furnaces for Burning Wet Fuel.*

What I claim is, the combustion, for the purposes of a high degree heat, of bagasse, refuse tan, saw-dust, and other wet refuse sub-

stance, or very wet and green wood, by the employment of a series of fire-chambers, arranged in any manner substantially as described, to communicate with one common flue or mixing chamber, when any number of said chambers are nearly closed to the admission of air when first charged, as described, whilst the remaining chamber or chambers, is in full communication with the flue, and has a free supply of air admitted, and the ash-pit of each chamber in its turn is nearly closed, and then opened and has air admitted, whereby the heat required is rendered continuous and comparatively uniform, while the fuel in some of the chambers is being heated and decomposed to a desirable degree, as herein set forth.

MOSES THOMPSON.

No. 399.—*Improvement in the Buff for Polishing Spoons and Other Articles.*

What I claim is, a cylindrical buff composed of soft leather disks or rings, when the outer portions of said disks are left perfectly free from each other, so as to admit of the yielding necessary to their proper action, substantially as herein described.

LUTHER BOARDMAN.

No. 400.—*Improvement in Manufacturing Hat Bodies.*

What we claim, as the invention of the said Henry A. Wells, deceased, is the forming of the bat of fur fibres on a perforated cone or other form, in manner substantially as described, in combination with the hardening of such bat while on such cone or other form, to give it the required consistency to admit of taking it off in a suitable condition for sizing by the well known process of felting, substantially as described.

CHARLES ST. JOHN,
H. A. BURR,
A. H. WRIGHT,
JAS. M. RIBLET.

No. 401.—*Improvement in Door Locks.*

What I claim is, making the cases of door locks and latches double faced, or so finished that either side may be used for the outside, in order that the same lock or cased fastening may answer for a right or left-hand door, substantially as described.

I also claim the peculiar construction and double action (upon an inclined and horizontal track or way) of the locking car B, as herein before described, and the combination of the locking car B and safety cars G G^2 with one another and with the connecting or vibrating bar and bolt A, as within described, so as to fasten the bolt *c* securely and prevent its being picked.

I also claim so constructing the bolt, as herein before described, that by simply turning it over in the lock case it is adapted to a right or left hand door.

JOHN P. SHERWOOD.

No. 402.—*Improvement in Artificial Stone.*

What I claim is, the composition of marl and slaked lime, substantially in the proportions herein specified, for producing an artificial stone, or a substitute for stone and bricks.

ST. JULIEN RAVENEL.

No. 403.—*Improvement in Self-Sealing Cans.*

What I claim is: 1st. A vessel made with a groove to surround its mouth, prepared with cement, and ready for hermetical sealing; but to hermetical sealing itself I make no claim.

2d. The employment of elastic packing, arranged and retained by a groove of an acute form or whose sides are in close proximity, in the manner and for the purpose above described.

R. ARTHUR.

No. 404.—*Improved Boring Machine.*

What I claim is: 1st. The tubular or hollow augur or bits D, as constructed, having the cutting lips of the bits approach the centre and yet separated from each other, doing without the use of a screw on the end of the bit, for the purpose of preventing the bit from following the grain of the wood.

2d. I claim the worm J, operating on its own axle, and independent of the revolutions of the auger or bits D, for the purpose of clearing away the chips, as set forth.

ARCALOUS WYCKOFF.

No. 405.—*Piano-Forte Action.*

I claim the peculiar manner in which the back-catch *m* and the lifter *l*, or its equivalent, are combined together, and with the key-lever, viz: by a lever *i* hinged to the key-lever, and fastened to both back-catch and lifter, the whole being substantially in manner as herein before set forth.

D. H. SHIRLEY.

No. 406.—*Improvement in Reversible Horse-Power.*

What I claim is, constructing the horse-power so that the converge-gear may be shifted to and secured upon either end of the main-shaft; so that by reversing the pulley and pinion with their shaft, and placing the converge-gear upon the proper end of the main shaft, the machine may be converted from a right to a left-hand one, or *vice versa*, without removing the main shaft.

PHILIP H. KELLS.

No. 407.—*Improved Apparatus for Heating by Gas.*

What I claim is, the combination and arrangement, substantially as described, of air and gas burners or distributors, chambers A^1 and B^1, and their flue and air-supply conductors F C C, the whole being made to operate essentially as specified.

I also claim, in combination with the gas-burner, the perforated or wire-gauze tube *g*, operating as specified.

WILLIAM F. SHAW.

No. 408.—*Improvement in Harness-Saddles.*

What is claimed in the manner of constructing harness-saddles is, making the jockey-skirts and saddle of metal cast in one piece, substantially as and for the purpose specified.

O. B. NORTH & CO.,
By O. B. NORTH, *President.*
O. B. NORTH,
SAMUEL BRACE,
JUSTUS R. MORGAN,
SAMUEL MORGAN,
A. J. JUDD.

No. 409.—*Improvement in the Machine for Cutting Shoe Pegs.*

What I claim is, the combination of the vibrating knife C, or its equivalent, with the fluted-roller O, or its equivalent, operating in the manner above described.

STEPHEN K. BALDWIN.

No. 410.—*Improvement in Sewing Machines.*

What I claim as the invention of said Swingle is, the employment of a hook in connexion with the looping-needle, and arranging said hook

so that it shall pass into the cloth or material from the same side of it on which the looping-needle works or is situated.

I further claim as of said Swingle's invention the herein above described new or improved method of arranging the feed-motion or mechanism, the feed-wheel thereof being disposed horizontally, and its teeth made to engage with those of the rack situated on the vertical side of the clamp, the whole being substantially as specified.

ELMER TOWNSEND.

No. 411.—*Improvement in Nut Machines.*

What I claim is, a combination, substantially as herein described, of tables, boxes, and punchers, the same being arranged and operated in the manner set forth, or any equivalent thereto, for the purpose specified.

ROBERT GRIFFITHS.

No. 412.—*Improvement in Curry Combs.*

I claim combining the trough-shaped bars *a a a a*, which have the comb-teeth on their edges, with the folded strips of metal *b b*, which form the transverse bars, and receive the wire through them, forming a square open or hollow-back comb, as above described.

I also claim the shank, constructed with the fastening hole *f*, made by bending the wire, which saves the welding or drilling, and combined with the comb, as herein described substantially, so as to act as transverse bars and guards to the ends of the combs.

WILLIAM BEACH.

No. 413.—*Improvement in Marble-Sawing Machines.*

I claim the particular combination and arrangement of the fender bars J J^1 *j* j^1 with the adjustable guide pieces, when the same are constructed and arranged to operate in relation to each other in the manner and for the purpose set forth.

JOSE TOLL.

No. 414.—*Improvement in Sewing Machines.*

I claim: 1st. The combination, in a single machine, of these three following elements, namely: a table, or platform, to support the material to be sewed, holding it for the action of the needle, and presenting it properly to the grasp of the feeding apparatus; a sewing machine proper, consisting of a needle and shuttle, or their equivalent; and a mechanical feed automatic and causing the cloth to progress regularly, to which the cloth is not attached, and so grasping the cloth that it may be turned

and twisted by the hand of an operator, such twisting not interfering with the regular progression of the cloth; and the whole being constructed and acting together, and in combination with each other, substantially in the manner and for the purposes herein specified.

2d. I claim moving a shuttle, so shaped and held by its race that jaws may embrace it, by means of two jaws, which are alternately in contact with the shuttle, and are constructed and move substantially in the manner herein set forth, making and breaking their contact without any aid from cams or springs, or the equivalents of such devices.

And lastly, I claim a double-pointed shuttle, substantially such as is herein specified, in combination with jaws for driving it, substantially such as are described, whereby the shuttle may be thrown alternately from opposite directions through loops, without practically disturbing the loop-thread.

ALLEN B. WILSON.

No. 415.—*Improved Magazine, Repeating, and Needle Gun.*

I claim, 1st, the application of the rack E, situated between the gun-barrel A and the cartridge-barrel B, and the construction of the piston W in connexion with said rack for the purpose of pressing the cartridge into the revolving breech-piece, substantially as described.

2d. I claim the spiral spring round the needle, together with the jointed arm *b* at the upper end of the hammer L, constructed as set forth, and acting upon the needle in such a manner that, after said jointed arm has pressed the needle sufficiently far into the cartridge to ignite the priming, said arm is forced upwards, allowing thereby the needle to spring suddenly back, and pass under the arm by the action of the spring, by which any heating of the needle is prevented.

3d. I claim revolving the breech-piece by the pin V, in the manner substantially as described: *i. e.*, when the said pin is so constructed and arranged that it will rotate after the revolution of the breech-piece, and turn over at the moment it shall have passed the spiral groove, and return to its former position inclined, as described.

4th. I claim the ramming hammer M, worked in the manner and for the purpose herein set forth.

EDWARD LINDNER.

No. 416.—*Improved Magazine, Repeating, and Needle Gun.*

I claim the combination of the igniting needle with the revolving cylinder or breech-piece, when constructed, arranged, and operated in such a manner that the needle can only be projected when the proper aperture is presented to it, and will always be withdrawn previous to the revolution of the cylinder, substantially as described.

EDWARD LINDNER.

No. 417.—*Improvement in Manufacturing Carpets.*

I claim the fabric substantially as herein described, produced by the double wefts, one or both of which are parti-colored, in combination with the two sets of warps; one to divide and ingrain the wefts, and the other to bind in the wefts, substantially as and for the purpose specified.

JNO. G. MACNAIR.

No. 418.—*Multiform Moulding Plane.*

I claim the combination of a separate moulding part or slide, with the handle-supporting part or body of the plane, and applied thereto by means of plates and screws, or equivalent devices, substantially as specified, and for the purpose not only of enabling it to be removed from said handle part or body, but to allow another such a slide, (provided with a plane iron or cutter,) whatever may be its pattern, to be used in the application of or in combination with such handle part or body, as circumstances may require.

THOMAS D. WORRALL.

No. 419.—*Improved Machine for Reaming and Tapping Gas-Fittings.*

I claim the combination of the tool-holder with its spindle, when the said tool-holder is armed with its complement of bits or tools, and is capable of being turned upon an axis at right angles to and independent of the axis of the spindle, so that either tool may be revolved in the axis of the spindle, substantially in the manner and for the purpose described.

2d. I claim the rotating tool-holder, as constructed and operating in combination with the revolving chuck or clamp B, for holding the fitting, the whole being arranged in the manner substantially as herein set forth for the purpose described.

HENRY A. CHAPIN.

LISTS OF DESIGNS AND CLAIMS FOR 1856.

No. 753.—*Design for Hall Pendants.*

What I claim is, the configuration and arrangement of the several parts and ornaments combined, substantially as herein set forth, and forming a new and original design for a hall pendant.

SAMUEL B. H. VANCE.

No. 754.—*Design for Hall Pendants or Chandeliers.*

What I claim is, the design, configuration, and arrangement of the several parts and ornaments, as herein set forth, forming a new and original design for a hall pendant or a chandelier with three branches and burners.

SAMUEL B. H. VANCE.

No. 755.—*Design for Perfumery Bottles.*

What I claim is, the ornamental design of bottle, substantially as represented.

A. E. WETHERILL.

No. 756.—*Design for Cooking-Stoves.*

What we claim is, the design, configuration, and arrangement of the several ornaments in bas-relief, and mouldings on the plates of stove "Premium," as herein described, and shown in annexed drawing.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 757.—*Design for Portable Furnaces.*

What we claim is, the design, configuration, and arrangement of the several plates and ornaments thereon, as herein set forth and shown in the drawing, constituting a new design for portable furnaces.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 758.—*Design for Portable Ranges.*

What we claim is, the design, configuration, and arrangement of the ornaments in bas-relief, and mouldings on the several plates, as described and represented in the annexed drawing.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 759.—*Design for Gates.*

I claim it as represented on the drawing, for a gate for cemetery enclosures.

HERMANN ED. WESCHE.

No. 760.—*Design for Printing-Type.*

What I claim is, the forming on the face of printing type such figures, that the letters printed therefrom shall represent in the upper portion of each letter a colored ground with white stars, and in the lower portion alternate white and colored stripes, substantially in the manner shown.

L. Johnson.

No. 761.—*Design for Moulded Bricks.*

What I claim is, the shape of the brick and the ornaments that are on the brick, as represented and described in this specification and in the annexed drawings.

James M. Thompson.

No. 762.—*Design for Gates.*

I claim the design as represented and described in this specification and in the drawing.

Hermann Ed. Wesche.

No. 763.—*Design for Bottle Casters and Egg-Cup Stands.*

What I claim is, the ornaments B B^1 B^2 B^3 upon the sides of the base A, the scrolls *d* on the upper and lower edges of the sockets C, the ornaments D upon the outer sides of the sockets, the beaded rims *k* and scrolls C^1 on the plates E, and the figure H and leaves *m*, which form the main portion of the handle F; the whole being arranged and combined as described, to form an ornamental design for a bottle caster and egg-cup stand.

R. Gleason, Jr.

No. 764.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, such as herein described and represented in the annexed drawing.

Samuel Pierce.
James J. Dulley.

No. 765.—*Design for Stove Plates.*

What I claim is, the ornamental design and configuration of stove plates, such as herein described and represented in the annexed drawings.

Sanford Burnam.

No. 766.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, such as herein described and represented in the annexed drawing.

SANFORD BURNAM.
SAMUEL PIERCE.

No. 767.—*Design for Parlor Stoves.*

What I claim is, the ornamental design of the various parts of the stove or fire-place, as above referred to and represented in the drawings herein mentioned.

WM. T. COGGESHALL.

No. 768.—*Design for Parlor Stoves.*

What I claim is, the combination of the various ornaments and mouldings on the several plates, as shown in the drawings, the whole forming an ornamental design for a parlor stove.

SAMUEL D. VOSE.

No. 769.—*Design for the Handles of Forks and Spoons.*

What I claim is, the peculiar form and figure herein described and set forth, as the design for either side of fork, spoon, ladle, and knife-handles. The said articles being manufactured of metal of any known kind.

THEODORE EVANS.

No. 770.—*Design for Elevated Oven-Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms represented in the accompanying drawings, forming together the ornamental design for the plates of a cooking-stove.

S. W. GIBBS.

No. 771.—*Design for Clock-Case Fronts.*

What I claim is, the female figure C, peacock D, and foliage E, when arranged and combined, as herein shown, to form an ornamental design for a clock.

NICHOLAS MULLER.

No. 772.—*Design for Parlor Stoves.*

What I claim is, the combination and arrangement of ornamenta. figures and forms, represented in the accompanying drawings, forming together the ornamental designs for the plates of a parlor stove.

S. H. Ransom.

No. 773.—*Design for Six-Plate Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in and by the accompanying drawings, forming together an ornamental design for a six-plate stove.

S. H. Ransom.

No. 774.—*Design for Stove Plates.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in and by the accompanying drawings, forming together an ornamental design for a six-plate stove.

S. H. Ransom.

No. 775.—*Design for Cooking Stoves.*

What I claim is, the combination and arrangement of ornamental sign for a cooking-stove.

S. H. Ransom.

No. 776.—*Design for Elevated Oven Cooking-Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in the accompanying drawings, forming together an ornamental design for an elevated oven cooking-stove.

S. H. Ransom.

No. 777.—*Design for Chandeliers.*

What I claim is, the design, configuration, and arrangement of the several parts and ornaments, as herein set forth, forming a new and original design for a chandelier or pendant with two branches or burners

Saml. B. H. Vance.

No. 778.—*Design for Chandeliers.*

What I claim is, the design, configuration, and arrangement of the several parts and ornaments, as herein set forth, forming a new and original design for a chandelier with three branches or burners.

Samuel B. H. Vance.

No. 779.—*Design for Parlor Stoves.*

What we claim is, the ornamental design and configuration of the stove plates herein described and represented in the annexed drawings.

N. S. VEDDER.
WM. L. SANDERSON.

No. 780.—*Design for Metallic Pens.*

What I claim is, the device impressed on the pen, namely, a medallion bearing a likeness of Washington.

ALBERT GRANGER.

No. 781.—*Design for Cooking-Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in and by the accompanying drawings, forming together an ornamental design for a cooking-stove.

S. H. RANSOM.

No. 782.—*Design for Gas Ovens.*

What I claim as my invention is, the design for gas ovens, as herein above illustrated and set forth.

E. J. DELANY.

783.—*Design for Summer Furnaces.*

What I claim as my invention is, the design for summer furnace, as herein above illustrated and set forth.

JACOB BEESLEY.

No. 784.—*Design for Casters.*

What I claim is, the general design and configuration of the caster.

WM. H. GREEN.

No. 785.—*Design for Stove Plates.*

What we claim is, the foregoing design and configuration, forming an ornamental design for stove plates, as illustrated by the drawings.

HARVEY SMITH.
FREDERICK A. SHELDON.

No. 786.—*Design for Clock-Case Fronts.*

What I claim is, the wreath B and figures C D D, arranged as herein shown and described, and forming a new and ornamental design for a clock-case front.

NICHOLAS MULLER.

No. 787.—*Design for Clock-Case Fronts.*

What I claim is, the female figure B reclining or sitting upon the sheaves C, as shown and described, and forming a new and ornamental design for a clock-case front.

NICHOLAS MULLER.

No. 788.—*Design for Piano-Forte Legs.*

What I claim is, the ornamental design of a piano-forte leg as constructed, substantially as represented in the drawings and in manner as above described.

ISAAC ENGEL.

No. 789.—*Design for Cooking-Stoves.*

What I claim is, the arrangement and combination of the ornaments that form the design herein above specified.

ANTHONY J. GALLAGHER.

No. 790.—*Design for Parlor Stoves.*

What we claim is, the ornamental design and configuration of parlor stove plates, such as herein described and shown in the annexed drawings.

N. S. VEDDER.
WM. L. SANDERSON.

No. 791.—*Design for the Plates of Cooki n-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, such as herein described and represented in the annexed drawings.

WM. L. SANDERSON.
N. S. VEDDER.

No. 792.—*Design for Oven and Stove Doors.*

What I claim is, the figures $a\ a^1, b\ b^1, c\ c^1, d$, and $e\ e^1$, cast respectively upon the panels of the doors of ovens, ranges, or stoves, substantially as set forth and described, as a new ornamental design for the same.

JOSEPH A. READ.

No. 793.—*Design for Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in the accompanying drawings or delineations, forming together the ornamental design for the plates of a hall or a parlor stove.

S. W. Gibbs.

No. 794.—*Design for Parlor Stoves.*

What I claim is, the ornamental configuration of parlor-stove plates, such as herein described and shown in the annexed drawing.

David Hathaway.

No. 795.—*Design for Cooking-Stoves.*

I claim the ornamental design of each of the doors and side-plates, as represented in the drawings, and as above described.

Thomas A. Herrick.

No. 796.—*Design for Combined Match-Safes, Paper-Weights and Pin-Cushions.*

What I claim is, the new design of a combined match-safe, paper-weight and pin-cushion, substantially such as is represented in the drawings and specification herein referred to.

Michael B. Dyott.

No. 797.—*Design for Portable Ranges.*

What we claim is, the design, configuration, and arrangement of the ornaments in bas-relief, and mouldings, as herein set forth and shown in the annexed drawings, constituting a new and original stove design.

James Horton.
John Currie.

No. 798.—*Design for Piano-forte Legs.*

What I claim is, the form and configuration of the central fluted column and the pendant or jutting device at F F F; the whole producing an ornamental design for a piano-forte leg.

Albert Bosworth.

No. 799.—*Design for Cooking-Stoves.*

I claim the design for the "Lotus" cooking-stove, substantially as described and represented.

WILLIAM RESOR.

No. 800.—*Design for Cooking-Stoves.*

I claim the design for the "Kentucky" cooking-stove, substantially as described and represented.

WILLIAM RESOR.

No. 801.—*Design for Stoves.*

What I claim is, the arrangement and combination of ornaments which form the design, above described, for a parlor oven stove.

ISAAC DILLER.

No. 802.—*Design for Cooking-Stoves.*

We claim the design, configuration, and arrangement of the several ornaments in bas-relief, as set forth, on the plates of the cook-stove designated as the "President."

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH READ.

No. 803.—*Design for Air-Tight Stoves.*

We claim the design, configuration, and arrangement of the several ornaments in bas-relief and mouldings of the plates A and C, as herein set forth and represented in the drawing.

GARRETTSON SMITH.
HENRY BROWN.

No. 804.—*Design for Nine-Plate Stoves.*

We claim the design, configuration, and arrangement of the several ornaments and mouldings, and form of support of the nine-plate stove, as above set forth and represented in the drawings.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 805.—*Design for Stoves.*

We claim the design, configuration, and arrangement of the plates and the ornaments thereon, as set forth and delineated in the drawings.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 806.—*Design for Stoves.*

What I claim is, the combination and arrangement of the ornamental figures and forms represented in the accompanying drawings, forming together the ornamental design of a six-plate stove.

S. W. GIBBS.

No. 807.—*Design for Cooking-Stoves.*

I claim the general form and proportions combined with the mouldings, figures, and ornaments, substantially as above described.

JOHN F. ALLAN.

No. 808.—*Design for Stoves.*

What I claim is, the design and configuration of the mouldings and ornaments as herein described, forming an ornamental design for stoves.

S. W. GIBBS.

No. 809.—*Design for Stoves.*

What I claim is, the combination and arrangement of ornamental forms and figures represented in the accompanying drawings, forming altogether the ornamental design of a parlor cooking-stove.

S. F. PRATT.

No. 810.—*Design for Stoves.*

What we claim is, the design and configuration of the ornaments and mouldings as herein described, forming an ornamental design for stoves.

N. S. VEDDER.
WM. L. SANDERSON.

No. 811.—*Design for Cooking-Stoves.*

We claim the combination of the various ornaments and mouldings on the several plates and doors, as shown in the drawing, the whole forming an ornamental design for a cooking-stove.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 812.—*Design for the Base of Clock-Case Fronts.*

What I claim is, the male figure G, dog H, stumps B B B^1, roots C C C, leaf foliage D, and blades of grass E E, when arranged and combined as shown, to form an ornamental design for a clock-case front.

NICHOLAS MULLER.

No. 813.—*Design for Clock-Case Fronts.*

What I claim is, the war trophies *a b c d e*, foliage *g g*, and eagle E, when arranged and combined as shown, to form an ornamental design for a clock-case front.

NICHOLAS MULLER.

No. 814.—*Design for Ornamental Fire-Places.*

What I claim is, the ornamental design, configuration, and arrangement of the front plate and fender of grates, as herein described in this specification and represented in the accompanying drawings.

JOHN C. MACY.

No. 815.—*Design for Parlor Ovens.*

What we claim is, the general design and configuration of the stove.

RUSSEL WHEELER.
S. A. BAILEY.

No. 816.—*Design for Box-Stove Plates.*

I claim the combination and arrangement of the ornamental figures and forms represented in the accompanying drawings, forming together the ornamental designs for a box-stove plate.

WINSLOW AMES.

No. 817.—*Design for Cooking-Stoves.*

I claim the configuration and arrangement of the ornaments herein described, the whole forming a new and original design for a cook-stove.

JOSEPH HACKETT.

No. 818.—*Design for Clock-Fronts.*

What we claim is, the combination and arrangement, as described, of the several ornaments specified and shown, for the purpose of forming a new and ornamental design for a clock-case front.

J. SHEPHERD.
R. SHEPHERD.

No. 819.—*Design for Cooking-Stoves.*

What we claim is, the form or configuration of the parts or ornaments herein described, the whole forming a new and original design for a cook-stove.

BENJAMIN WARDWELL.
EPHRAIM R. BARSTOW.

No. 820.—*Design for Drawer-Pulls.*

We claim the above described and represented new ornamental configuration or design for a drawer-pull.

PHILOS BLAKE.
ELI W. BLAKE.
JOHN A. BLAKE.

No. 821.—*Design for Stove Plates.*

What I claim is, the ornamental design and configuration of stove plates, such as herein described and shown in the annexed drawings.

N. S. VEDDER.

No. 822.—*Design for Parlor Stoves.*

What we claim is, the ornamental design and configuration of parlor stoves, the same as herein described and shown in the annexed perspective drawing.

SAMUEL PIERCE.
J. J. DULLEY.

No. 823.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, the same as herein described and shown in the annexed perspective drawing.

SAMUEL PIERCE.
J. J. DULLEY.

No. 824.—*Design for Cooking-Stoves.*

What I claim is, the ornamental design and configuration of cook-stove plates, such as herein described and shown in the annexed perspective drawing.

N. S. VEDDER.

No. 825.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, such as herein described and shown in the annexed perspective drawing.

N. S. Vedder.
Ezra Ripley.

No. 826.—*Design for Parlor Stoves.*

What I claim is, the ornamental design and configuration of parlor stove plates, such as herein described and shown in the annexed drawings.

D. Hathaway.

No. 827.—*Design for Six-Plate Stoves.*

What we claim is, the ornamental design of the end and side plates of a six-plate stove, the same as herein described and represented in the annexed drawings.

N. S. Vedder.
Ezra Ripley.

No. 828.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design herein described and represented in the annexed drawings for the front and side plates of a cooking-stove

N. S. Vedder,
Wm. L. Sanderson.

No. 829.—*Design for Cooking-Stoves.*

What we claim is, the ornamental design and configuration herein specified and represented in the annexed drawings for the plates of a cooking-stove having an elevated oven.

N. S. Vedder.
Wm. L. Sanderson.

No. 830.—*Design for Stoves.*

What we claim is, the design, configuration, and arrangement of the ornaments in bas-relief on the several plates, as herein before set

forth and shown in the drawing constituting the design of stove designated as the "Gem."

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 831.—*Design for Floor-Cloths.*

What I claim is, the arrangement of ornamental figures forming a design for floor oil-cloths or other fabrics, as shown in the aforesaid drawing.

ANTOINE GLOMINSKI.

No. 832.—*Design for Floor-Cloths.*

What I claim is, the arrangement of ornamental figures forming a design for floor oil-cloths or other fabrics, as shown in the aforesaid drawings.

ANTOINE GLOMINSKI.

No. 833.—*Design for Parlor Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in the accompanying drawings, forming together the ornamental designs for the plates of a parlor stove.

S. F. PRATT.

No. 834.—*Design for Oven-Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms, represented in the accompanying drawings, forming together the ornamental design for the plates of a Franklin stove.

S. F. PRATT.

No. 835.—*Design for Parlor Cooking-Stoves.*

What I claim is, the design, configuration, and arrangement, in bas-relief, on the ends and front of the stove, as described and shown, forming a new and original design for a cooking-stove.

DANIEL WILSON.

No. 836.—*Design for Cylindrical Coal-Stoves.*

What we claim is, the general design and configuration of the stove.

RUSSEL WHEELER.
STEPHEN A. BAILEY.

No. 837.—*Design for Cooking-Stoves.*

What I claim is, the ornamental configuration, composing a design for a cooking-stove, substantially as represented and specified.

HUDSON E. BRIDGE.

No. 838.—*Design for Busts of J. C. Fremont.*

What I claim is, a new and original design of a bust of Colonel John C. Fremont, as set forth in the above specification.

JOHN GOTT.

No. 839.—*Design for Stoves.*

What we claim is, the design and configuration of the ornamental plates, as herein described, forming an ornamental design for stoves.

N. S. VEDDER.
WM. L. SANDERSON.

No. 840.—*Design for Stoves.*

What I claim is, the design and configuration of the ornaments, as herein described, forming an ornamental design for stoves.

S. W. GIBBS.

No. 841.—*Design for Parlor Stoves.*

What we claim is, the design for parlor stove, as herein above illustrated and set forth.

JACOB BEESLEY.
E. J. DELANY.

No. 842.—*Design for Cooking-Stove Plates.*

What I claim is, the ornamental design herein described and represented in the annexed drawings for panels of plates of cooking-stoves.

N. S. VEDDER.

No. 843.—*Design for Cooking-Stoves.*

What I claim is, the use of the patterns or devices (marked *a* and *b* in the several drawings) for ornamenting the side pieces, front, and back pieces of cooking-stoves, in the manner shown in the accompanying drawings.

N. S. VEDDER.

No. 844.—*Design for Stoves.*

What we claim is, the design, configuration, and arrangement of the ornaments in bas-relief and mouldings, as herein described and shown in the drawings, constituting an ornamental stove design.

GARRETTSON SMITH.
HENRY BROWN.
JOSEPH A. READ.

No. 845.—*Design for Stoves.*

What I claim is, the configuration, composing an ornamental design for the top, base, and door of a sheet-iron, air-tight stove, substantially as represented and described.

HUDSON E. BRIDGE.

No. 846.—*Design for Cook-Stoves.*

What we claim is, the ornamental design and configuration of cook-stove plates, such as herein described and shown in the annexed drawing.

N. S. VEDDER.
WM. L. SANDERSON.

No. 847.—*Design for Statuettes of Burton, as Captain Cuttle.*

What I claim is, the design herein described and shown for a statuette of Mr. Burton as "Captain Cuttle."

C. MULLER.

No. 848.—*Design for Stoves.*

What I claim is, the ornamental design and configuration of the plates or castings for Franklin stoves, herein specified and represented in the annexed drawing.

J. J. DULLEY.

No. 849.—*Design for Parlor Stoves.*

What I claim is, the combination and arrangement of ornamental figures and forms represented in the accompanying drawings, forming the ornamental design for the plates of a parlor stove, as represented in the accompanying drawings.

ELIHU SMITH.

No. 850.—*Design for Kitchen Stoves.*

I claim the design here described for the external ornament and configuration of a kitchen stove.

S. W. GIBBS.

No. 851.—*Design for Printing Types.*

I claim the design of the said type as described and shown.

GEORGE BRUCE.

No. 852.—*Design for Cooking Stoves.*

I claim the combination and arrangement of ornamental figures and forms represented in the accompanying drawings, forming together the ornamental design for the plates of an elevated oven cooking stove.

S. W. GIBBS.

No. 853.—*Design for Cooking Stoves.*

I claim the combination and arrangement of ornamental figures and forms represented, forming the ornamental design for the plates of a cooking stove.

S. W. GIBBS.

No. 854.—*Design for Cooking Stoves.*

We claim the design, configuration, and arrangement of the ornaments in bas-relief on the several plates as above set forth and delineated in the drawing, constituting stove design "Young America."

G. SMITH.
HENRY BROWN.

No. 855.—*Design for Parlor Grates.*

I claim the ornamental configuration and design for a parlor-stove grate such as herein described, and shown in the annexed perspective drawing.

JOHN T. DAVY.

No. 856.—*Design for Cooking Stoves.*

I claim the ornamental configuration and design for cook-stove plates such as herein described and shown in the annexed perspective drawing.

JOHN T. DAVY.

No. 857.—*Design for Parlor Cooking Stoves.*

I claim the ornamental design and configuration of parlor cook-stove plates, such as herein described and shown in the annexed drawings.

JOHN T. DAVY.

No. 858.—*Design for Metallic Bedsteads.*

I claim the ornamental design of the post, leg, and head-board of the bedstead, as described and represented.

JOHN B. WICKERSHAM.

No. 859.—*Design for Floor Cloths.*

What I claim is the arrangement of ornamental figures forming a design for floor oil-cloths or other fabrics as shown in the aforesaid drawings.

ANTOINE GLOMINSKI.

ADDITIONAL IMPROVEMENTS.

No. 131, to original Letters Patent No. 10,942.—*Improvement in Hydraulic Heaters.*

What we claim is, the use of the radial ribs *d d* in combination with tubes F F^1, irrespective of form of said tubes, for the purposes set forth substantially in the foregoing specification.

LEWIS W. LEEDS.
R. MORRIS SMITH.

No. 132, to original Letters Patent, No. 13,018.—*Improvement in the Manufacture of Ornamental Felt-Cloth.*

What I claim is, the manufacturing of ornamental felt fabrics by placing loose, woven, or knit felting or shrinking fabrics, of any color or design, upon the surface of a sheet of batting composed of any felting or shrinking substance; and shrinking the same ornamenting fabric or fabrics into the body of the felt in the manner substantially as described, to form an ornamental felt fabric of the character and quality described, for the purpose set forth.

O. B. TOMLINSON.

No. 133, to original Letters Patent No. 14,074.—*Improvement in Candlesticks.*

What I claim is:

1st. Securing the lip A to the stem D, and within the slide E F, as described, whereby I am enabled to use a solid lip and avoid all leakage.

2d. I claim the open slide as described, for avoiding damage, as set forth.

ABNER WHITELEY.

No. 134, to original Letters Patent No. 9,611.—*Improvement in Daguerreotype Cases.*

What I claim is, the combination and arrangement of a series of leaves of any suitable material containing photographic or other pictorial representations, (interspersed or not with blank or printed leaves) with the supplementary lid or adjustable flap, containing a lens or lenses, as described; the same being united or bound together so as to form a book, substantially in the manner and for the purposes described.

J. F. MASCHER.

No. 135, to original Letters Patent No. 12,181. Re-issue 347.—*Improvement in Grinding Mills.*

What I claim is, in combination with the cylinder, concave and spiral ribs, the cracking or crushing apparatus preceding the grinding surfaces, for the purpose of adapting the mill to the grinding of corn and the cobs or other similar material, substantially as set forth.

AMORY FELTON.

No. 136, to original Letters Patent No. 14,068.—*Improvement in Excavating Machines.*

What I claim is, the adjustable brace A^1 or its mechanical equivalent, in combination with the oscillating connecting arms H H, the combination being substantially in the manner and for the purposes as herein fully set forth.

The adjusting guide B^1 or its mechanical equivalent, constructed and operating substantially in the manner and for the purposes as herein fully described.

The tipping scoop X, having a stationary back firmly bolted and braced to the scoop staff, which back forms a rest or shoulder for giving firm support to the scoop in its excavating operation, the scoop being constructed and affixed to the staff, and operating in the manner and for the purposes substantially as herein fully specified.

J. J. SAVAGE.

No. 137, to original Letters Patent No. 12,205.—*Improvement in Mash Machines.*

What I claim is, the construction, application, and use of the inclined curved teeth A and B, substantially and for the purpose as set forth and described.

ADOLPH HAMMER.

No. 138, to original Letters Patent No. 13,130.—*Improvement in Gas Burners.*

I claim extending up into the gas distributor and purifier, and among the wires of the latter, as specified, a cone, having at its apex the inlet opening for the passage of gas into the purifier, the same serving to attain advantages as herein before explained.

CHARLES H. JOHNSON.

No. 139, to original Letters Patent No. 11,268.—*Improvement in Ventilating Railroad Cars.*

What I claim is, a small door that may be opened or shut in connexion with and as part of a car window, that may be raised or opened in the usual way, as above described.

GEORGE F. FOOTE.

No. 140, to original Letters Patent No. 14,036.—*Improvement in Grain Binders for Harvesters.*

What I claim is:

1st. The long lever *m*, operated by projections b^2 b^3 and spring *p*, for the purposes herein above set forth.

2d. The arrangement and combination with the cams for operating the compressor, the lever *d*, bevel gearing *j*, *i* i^1, and pulley wheel *e* on the pinion shaft, all arranged and operating for the purposes herein above set forth.

3d. The guards *t t*, for the purposes substantially as herein set forth.

G. W. N. YOST.

No. 141, to original Letters Patent No. 11,155.—*Improvement in Grass Harvesters.*

What I claim is, connecting the projections A, which are on alternate sections of the sickle, to the bar L, so that the said bar may be on top of said sections, as herein set forth.

GEORGE ESTERLY.

No. 142, to original Letters Patent No. 14,429.—*Improved Faucet.*

What I claim is, the combination of the screw, or its mechanical equivalent, with a hollow cylinder valve, constructed as specified, and the spring, when the latter is placed behind the valve, substantially as set forth.

MOSES WOODBURY.

No. 143, to original Letters Patent No. 12,275.—*Improvement in Means for Holding Window Blinds.*

What I claim is, the improved manner of hanging the brace D so that it will operate freely by its own weight; and casting or swaging the notches or their equivalent, so as to retain the blind in any desirable position.

HENRY A. FROST.

No. 144, to original Letters Patent No. 11,668.—*Improved Coupling for Carriages.*

What I claim is, arranging, above the threaded bolt and with respect to the guard from which it extends, as described, a seat or connexion for the spring or other part of a carriage, as specified.

I also claim arranging in the threaded bolt, and so as to pass up through it and its rest, a socket or passage for the reception of a screw-bolt, serving not only to confine a spring or bar down upon the seat, but for the specific purpose of preventing accident in case of breakage of the threaded bolt at its neck, as specified.

ABRAM J. GIBSON.

No. 145, to original Letters Patent No. 11,198.—*Improvement in Breech-Loading Fire-Arms.*

What I claim is: 1st. A swivel jointed cylindrical breech-pin D, the rear portion of which is armed with lugs *b b* and studs *c d e*, and an inclined plain *f*, all operating in the manner and for the purpose as herein specified.

2d. The locking of the cylindrical breech-pin D by means of lugs *b b* on said breech-pin, rotating on slightly inclined planes, said planes formed within the barrel, on opposite sides, and at the rear of the mortise C, or their equivalents, substantially as set forth.

3d. The peculiar combination and arrangement of the four parts or pieces of an ordinary gun lock, to wit: the hammer, main-spring, tumbler, and feather spring, making one plain, simple piece, operating as above represented.

4th. I claim the slotted thumb-lever E in combination with the studs

c d e, whereby the swivelled breech is caused to rotate from left to right and from right to left in locking and unlocking said breech, and whereby the breech is also moved back and forth, substantially as above described.

ABNER N. NEWTON.

No. 146, to original Letters Patent No. 10,174.—*Improved Protecting Bulwarks for War Vessels.*

What I claim is, the panels E and stancheons D, as arranged in relation to the promenade deck C and bulwarks of the vessel, substantially in mode of construction and for the purposes set forth.

WM. BALLARD.

No. 147, to original Letters Patent No. 13,724.—*Improvement in Looms.*

What I claim is, the employment of two sets of cams, four in each set, constructed, shaped, and arranged in reference to each other as shown in the drawings; the same being movable to the right and left without changing their intervals, and in either position producing a tubular cloth. One set being arranged in reference to the other, so that the shift of the cams shall make the harness shift the warp; instantly carrying that part forming the upper web downward, and that forming the lower web upward, making at their crossing a firm single joint.

JAS. ORN LEACH.

No. 148, to original Letters Patent No. 14,626.—*Improved Method of Regulating Pumps by Wind Wheels.*

What we claim is: 1st. Constructing the wind wheel so that the shaft *c c* will turn with it, together with the manner of breaking or stopping the wheel when the water cistern is filled with water by means of the hydrostatic bellows H (fig. 1) and the lever K K^1 and the brake-blocks O O, constructed in the manner described.

2d. The construction of the friction-wheel D in combination with the friction-wheel E and the brake K, (see fig. 2,) constructed in the manner described or any other substantially the same and which will produce the same results.

JACOB W. GOODWIN,
MOSES C. HAWKINS.

No. 149, to original Letters Patent No. 12,267.—*Improved Gas Heater.*

I *claim* the arrangement therein in manner as described of a separate or boiling chamber G, that is, to or between the flue-pipe E and the

reverberating dome or space F, substantially as described, in order that the apparatus may be made to perform functions as stated.

WILLIAM F. SHAW.

No. 150, to original Letters Paten, No. 14,735.—*Improved Apparatus for Raising and Lowering Carriage Tops.*

What I claim is the box B pawl or catch D, in combination.

ALANSON QUIGLEY.

No. 151, to original Letters Patent No. 15,005.—*Improvement in Rotary Brick Machines.*

(For engravings see Additional Improvement 151.)

What I claim is:

1st. The substitution of the single square-toothed ratchet wheel D and the pendulous lever E, with its spring *e* in the "apparatus," described in my former specification, "for rotating and stopping the cylinders of rotary brick machines;" the said square-toothed ratchet-wheel, lever and spring being constructed, applied, and operating substantially as set forth and described herein.

2d. A single cylinder A with two series of moulds in the same, when the said cylinder is constructed as described; that is to say, with the partition *b* in the middle and open at each end, the movable bottoms of the moulds thereof being supported at each of their ends by the rims *e* e^1 which are partially supported by the rollers *t* t^1, whilst the roller *h* and its bearings *i* i^1 operate between the said two rims, when the above parts are constructed, arranged, and operated substantially in the manner and for the purpose set forth.

GEORGE CRANGLE.

No. 152, to original Letters Patent No. 15,521.—*Improved Fire-Arm.*

What I claim is, the placing of the hammer and trigger with their springs within the arm D.

The cocking of the hammer by the movement of the arm D and the aid of stud S, or its equivalent.

The placing of the tape-priming under the barrel and in front of the cone, the same to be brought properly on to the cone by the movement of the arm D.

The placing of the tape-priming and operating the same as described, in combination with the arm D.

F. D. NEWBURY.

No. 153, to original Letters Patent No. 15,362.—*Improvement in Fenders for Fire-places.*

I claim the construction of a fire-place wherein recesses D D^2 are formed in the jambs thereof, with hinged folding and expanding wings or flaps A A and F^2 attached thereto, forming a *fender* and a *screen* with the springs E E together with the *double-sliding panels* F F, fig. 1, and G G, fig. 3, substantially as described.

JNO. W. TRUSLOW.

No. 154, to original Letters Patent No. 15,005; Additional Improvements, No. 151.—*Improvement in Rotary Brick Machines.*

What I claim is, the application of the cut-off slides E E so as to slide up and down in contact with the plungers B B respectively, as described, and so as to produce in combination with the lower guide-piece C the alternately open and close chambers beneath the plungers, substantially in the manner and for the purpose set forth and described.

GEORGE CRANGLE.

No. 155, to original Letters Patent No. 3,803.—*Improvement in Harvesting Machines.*

What I claim is, the method of constructing the arm of the axle A, in combination with the metallic box z z, and the socket and yoke b^1, as shown at fig. 3 and No. 1, whereby the adjusting apparatus is placed beneath the body of the carriage, the whole being substantially combined and arranged as set forth in the above specification.

GEORGE ESTERLY.

No. 156, to original Letters Patent No. 14,294.—*Improvement in Hubs for Carriages.*

I claim the combination of the boxes *c c*, cylinder *d*, band *k*, with the rollers *i i i i*, all arranged substantially as described, and for the purposes set forth.

JOSEPH SMITH.

No. 157, to original Letters Patent No. 11,198; Additional Improvements No. 145.—*Improvement in Breech-Loading Fire Arms.*

I claim: 1st. The combination of the lever E with the breech-pin, substantially in the manner and for the purposes herein set forth.

2d. I claim one or more lips *l* in combination with the breech-pin, substantially as described.

3d. I claim cocking the gun by the backward movement of the breech-pin, as set forth.

4th. I claim cocking the gun by the tension lever J, as herein described.

5th. I claim forcing the part *m*, or its equivalent, between the main-spring and the barrel for the purpose of imparting tension to the main-spring.

6th. I claim relaxing the main-spring by removing the part *m*.

7th. I claim attaching the main-spring H to the barrel.

8th. I claim the combination of the hammer F with the barrel by means of supports G, as delineated.

9th. I claim sliding the breech-pin L wholly within the barrel, as shown.

ABNER N. NEWTON.

DISCLAIMERS.

Letters Patent No. 12,762.—*Improvement in Looms.*

Your petitioners, therefore, hereby enter their disclaimer to that part of the claim in the aforementioned specification, which is in the following words, to wit: "For the purpose of operating the shuttle boxes of looms, through the intervention of a straight rack;" which disclaimer is to operate to the extent of the interest of said letters patent vested in your petitioners, who have paid ten dollars into the treasury of the United States, agreeably to the requirements of the act of Congress in that case made and provided.

JOHN G. MELVILLE,
WILLIAM BRAYSHAW.

Letters Patent No. 2,658.—*Improvements in Lamps.*

Your petitioner, therefore, hereby enters his disclaimer of that part of the claim in the aforementioned specification which is in the following words, to wit:

"Third. I claim the mode of regulating the light by raising or lowering the burner and outside regulating cone combined; the centre plate, letter O, being at the time stationary, substantially as above described."

Your petitioner having paid ten dollars into the treasury of the

United States, agreeably to the act of Congress in that case made and provided.

MICHAEL B. DYOTT.

EXTENSIONS.

Letters Patent No. 2,455. Re-issue No. 335.—*Improvement in Spark Arresters.*

I claim the combination of the central chamber C, the series of tangential openings E E, the larger circular chamber A, furnished with a series of vertical openings J J, leading into exterior chambers or channels, for separating sparks and other particles of matter from the gaseous current discharged from locomotive or other chimneys, substantially in the manner set forth.

WM. C. GRIMES.

Letters Patent No. 2,467. Re-issue No. 342.—*Improvement in Machines for Threshing and Winnowing Grain.*

I claim, first, the peculiar construction of the chaff-screen Q^1, which consists of a thin plate of metal punched with a semi-circular instrument, for the purpose of producing semi-circular apertures, and at the same time leaving the parts of the metal thus partly punched from said plate overhanging said apertures, at an angle of 30 or 40 degrees, or at any suitable angle greater than that of the plate, for the purpose of allowing the grain to pass through said apertures, and at the same time prevent the chaff and straw entering them, and thereby preventing choking.

And, secondly, the combination of the system of screens, the blower, and the elevators X, for cleaning and conveying the cleaned grain to the granary or other place of deposit, substantially as herein set forth and represented.

ANDREW RALSTON.

Letters Patent No. 2,488.—*Improvement in Reaping Machines.*

I claim the construction of the vibrating cutters with serrated edges, whether said cutters be connected together so as to form a vibrating bar, or be placed separately on a bar of this kind, as set forth, in combination with the stationary teeth or blades serrated in a similar manner, and arranged below the former, as described.

I also claim the mode of constructing the rake and combining it with the bed of the machine, by forming it with pointed fingers on the ends of the arms, and arranging the fingers in spaces formed in the bed, as set forth.

I also claim the manner of discharging the grain from the bed by means of said rake and in the manner already described.

JONATHAN READ.

Letters Patent No. 2,507.—Re-issue No. 65.—*Improvement in the Method of Constructing Presses for Pressing Hay, Cotton, &c.*

I claim the manner in which I have constructed the press as shown by the combination of the segment-wheel A with the pinion B and its shaft B^1; the axis or fulcrum of the segment A being at the jointed part of the arms or other analogous devices that will allow of the axis or fulcrum moving from an acute angle to a straight line with the point on which the arms rest, and the line on which the gudgeon H moves, and *vice versa*. In other words, I claim the invention or discovery of moving the axis or fulcrum of a wheel or lever in the simple act of operation of said lever or wheel, the axis or fulcrum of which is at the movable joint E, so as to produce a direct force against the object to be moved, with all the advantages of the progressive power of the toggle joint operated upon by an extended lever, the whole being combined and operating substantially in the manner herein set forth.

S. W. Bullock.

Letters Patent No. 2,538.—*Improvement in the Construction of Heating Stoves.*

I claim the manner in which I have arranged the four descending flues K K, the space F under the false bottom E, and the exit-flue H, in combination with the opening N into the space F, so as to co-operate with the other parts of said stove in regulating the heat and determining the amount of the draught; and this I claim whether combined with the oven B or not. The sliding-door L, the drop-door C, and other parts of this stove, do not differ from such as have been previously known and used; and I do not, therefore, make any claim to these, or in fact to any part of the stove taken individually, but I limit my claim to the special combination and arrangement substantially as above set forth and made known.

Zephaniah Bosworth.

Letters Patent No. 2,577.—*Improvement in Water Wheels.*

We claim the placing of the buckets between two plates so formed that the parts in which they are contained shall constitute the frustums of cones; the lower or outer plate or plates being left open for a central discharge between the buckets; said buckets also being so arranged as that their planes shall form a tangent, or nearly so, with the circle of said opening; such wheel or wheels being likewise furnished with a neck or collar, running truly within or against a metallic plate; and the respective parts of said wheel and its appendages being combined together and arranged substantially as above set forth.

Lemuel W. Blake.
George W. Blake.

Letters Patent No. 2,609.—*Improvement in the Manner of Constructing Shielded Pins for Securing Shawls, Diapers, &c.*

I claim the combining of a concave-convex shield, which is bent or recurved at its ends, with a pin that is secured thereto by an eye or loop at one end, and the point of which is to pass into and be retained by the hollow in the recurved part of the opposite end, in the manner and for the purpose herein fully set forth.

THOMAS WOODWARD.

Letters Patent No. 2,648.—*Improvement in Machines for Ruling Paper.*

I claim the two cylinders A and B, arranged so that the lowest edge or part of the upper shall be situated at a distance from the upper edge of the lower cylinder, equal or a little greater than the length of the sheets to be ruled, (said length being taken in the direction in which the sheets move, and said edges of said cylinders being in or about in a horizontal plane, and so that the cylinder B shall have a velocity double that of the cylinder A,) in combination with the systems of rollers and cords, whereby the sheets are received from an endless feeding apron, upon which they are placed, so as to lap over each other, and from thence are caused to pass around the first cylinder, and be ruled thereon upon one half of one of their sides, and from thence to pass around the second cylinder and be ruled over the whole of their opposite sides, as herein set forth, the whole being arranged and operating substantially in the manner described.

GEORGE L. WRIGHT.

Letters Patent No. 2,651.—*Improvement in the Manner of Constructing Brushes for Dressing Warps.*

I claim securing the bristles in position, and preventing their displacement by the action of water or other external cause, by saturating said bristles when inserted in the block with paint or a mixture of white-lead or other suitable substance, and linseed or other proper oil, in combination with the mode above set forth of confining their upper ends by cementing them in an inverted trapezoidal groove; the whole process being substantially as above described, so that when a brush for dressing warps has its bristles arranged and confined, as set forth, in long grooves, or in any manner similar thereto, said brush will apply paste or sizing matter more perfectly upon the threads of the warp, and be more durable than brushes as generally constructed, as heretofore explained.

SAMUEL TAYLOR.

Letters Patent No. 2,646.—*Improvement in Felting for Coats, Hats, &c.*

I claim the making of gloves, coats, hose, or other articles of wearing apparel, of which wool, hair, or fur is the only material, by uniting, by

any process of felting, the bats of which any such article is composed, in a flat or projecting seam, and by cutting away the superfluous parts, after such seam is formed by felting, as above described, and without the folding or turning over of the edges or margins of the bats, which is used in the ordinary process of making hats.

MARMADUKE OSBORNE.

Letters Patent No. 2,656.—*Improvement in Machinery for Grinding and Polishing Metallic Surfaces, particularly Saw-Plates.*

I claim the combining with the reciprocating beds or tables, or with the revolving disk or face plate, the cylindrical lap herein described, which is made to traverse back and forth upon its axis, and which may be borne up with any required degree of force against the article to be ground or polished, in the manner set forth; the face or periphery of said cylindrical lap being composed of a number of separate and distinct plates of metal, which are to constitute the grinding and polishing surfaces, and which are to be held in place by a screw or screws, and by being confined between rims, or in other suitable modes, substantially the same; the distinguishing feature of the said lap being the dividing of its periphery into separate plates, and combining the same together, as herein set forth.

RICHARD M. HOE.

Letters Patent No. 2,658.—*Improvement in Lamps for Essential Oils, &c.*

1st. I claim the air regulator, substantially as above described.

2d. I claim the combination of the two horizontal plates, the one above, and the other below or even with the top of the wick, to regulate the interior draught of the lamp, substantially as above set forth.

3d. I claim the mode of regulating the light by raising or lowering the burner and outside regulating-cone combined, the centre-plate O being at the time stationary, substantially as above described.

4th. I claim the mode of constructing a wick-tube, (see figs. 5 and 6,) its upper end being conical, or enlarged, so as to admit of a feeder being placed under the wick without enlarging it in diameter, substantially as above set forth.

MICHAEL B. DYOTT.

Letters Patent No. 2,708.—*Improvement in Water-Wheels.*

I claim the combination of the wheel, constructed as hereinbefore described, with the spiral conductor D and tube F, so as to get the full pressure of the water, while the wheel is relieved of its weight, in the manner and for the purpose set forth.

REUBEN RICH.

Letters Patent No. 2,725.—*Improvement in the Machine for Cutting Shoe-Pegs.*

I claim the method of feeding the bolt by the combination of the fluted roller, ratchet-wheel, and reaching-arm, and adjustable lever connected with the vibrating knife, as before described.

STEPHEN K. BALDWIN.

Letters Patent No. 3,124.—*Improvements in the Machine for Sweeping and Cleaning Streets.*

I claim: 1st. The manner of counterbalancing any desired portion of the weight on the carrier-plate, the endless chain of brooms, and their appendages, by means of the weight or weights Y, through the intermedium of the chains, pulleys, and segments, arranged and operating substantially as set forth, so as to relieve and regulate the pressure of the brooms, &c., on the ground, or to raise them up entirely, when desired.

2d. I claim the manner of widening out the cart at its rear end on the near side, as shown at No. 15, (figs. 7, 8 and 9,) so as to allow the brooms, &c., to operate near the curb-stone, at that part.

3d. I claim the manner of forming the cart in two parts, *w* and *x*, and of attaching and suspending the lower part by means of the chains 2 2, and the grooved pulleys 5 5, attached to the axle *z*, and otherwise connected and arranged, as set forth.

4th. I claim the manner of forming the brooms or scrapers into endless chains by means of open and closed links, as described.

5th. The so combining rotating brooms with an incline or carrier-plate, that the incline or carrier-plate, and the framing which carries the brooms, may be adjusted as the brooms wear away, the same being effected by an arrangement of parts the same with that described.

JOS. WHITWORTH.

Letters Patent No. 2,754. Reissue, No. 165; Re-reissue, No. 371.—*Machine for Cutting the Threads of Wood-Screws.*

What is claimed is:

1st. In combination with the shaft, or mandrel, which gives the rotary motion to the screw-blank, the employment of the rotating wedge-formed cam, or the equivalent thereof, for determining the pitch of the thread and for permitting the return motion to repeat the operation, substantially as described.

2d. Causing the chaser, or cutter, at each successive cut to approach nearer to the axis of the screw-blank by means of a revolving conical cam, which, at each successive operation, acts by a greater radius, substantially as described.

3d. Governing the motions of the chaser, or cutter, to make the core

or body of the screw of a conical or tapered form along the whole or any part of its length, by combining therewith a cam of gradually enlarged diameter, substantially as described, the form of such cam depending on the form intended to be given to the core or body of the screw.

4th. Combining the cam which determines the form of the core or body of the screw (to make it tapering or conical in whole or in part) with the chaser, or cutter, by means of a rock-shaft and adjusting-lever, substantially as herein described; the said adjusting-lever being interposed between one of the arms of the rock-shaft and the face of the cam, so that, by the use of a set-screw or other analogous device, the cutter, or chaser, may be readily set, as described.

5th. Shifting the cam which determines each successive cut of the chaser, or cutter, by combining therewith a ratchet movement, operated by an eccentric or cam, the wheel of the ratchet being provided with pins, which operate a lever connected with the cam to shift, substantially as described.

6th. Disconnecting the shaft, or mandrel, from the driving-power at the end of each complete operation of the machine, by combining the clutch, or the equivalent thereof, with the ratchet by means of an index-wheel, or perforated rim, which, at the required periods, liberates or acts upon the connexions of the clutch to disengage it, substantially as described.

7th. Making the chaser, or cutter, for chasing or cutting the threads of wood screws by machinery with a groove of the form of the thread in its cutting face, and in the direction of its length, substantially as described, whereby the said chaser can be sharpened by simply grinding off at the end, and without changing the form of the groove, and whereby also the said chaser cuts on both sides of the thread, and finally on the edge thereof, as described.

8th. The combination of the screw-driver for holding and rotating the screw-blank with the tubular rest open at the side to support the shank of the blank while being threaded, substantially as described.

CULLEN WHIPPLE.

Patent dated October 4, 1830. Extended under act of Congress to March 2, 1864.—*Improvements in the Printing Machine called the Power Printing Press.*

I claim the combination of stationary fly-frames, with points for getting register by on them, with printing presses. The object of these fly frames is to enable the person who lays on the paper to point one sheet while the sheet previously put on is receiving the impression, and by that means save the time which would be lost in waiting for the frisket to come out.

Furthermore, I claim the apparatus described in the foregoing specification for giving a periodical movement to the rollers and friskets;

that is, I do not claim the parts separately, but merely that combination of parts to produce the effect, as set forth in the specification.

And furthermore, I claim as my invention the application of the declension lever, set forth and described in the foregoing specification.

ISAAC ADAMS.

Patent dated March 2, 1836. Re-issue No. 116. Extended under act of Congress to March 2, 1864.—*Improvement in the Power Printing Press.*

1st. I claim the mechanical combination by which the motion produced by the crank and pitman is so modified and communicated to the toggle-joints as to produce the impressions, and so as to give the said toggle-joints the necessary intervals of rest and reciprocating motion, the same consisting of the alternator q^5 and a connecting-rod or pitman w^5, in combination with said crank f^2 (figure 7) and said toggle-joints, or any other mechanical equivalent, acting substantially as specified, the said toggles having a roller r^5, or any mechanical substitute therefor.

2d. And I also claim the mechanical combination employed to operate the frisket-carriage, or impart to it with the inking rollers and nippers their peculiar intervals of rest and reciprocating motions towards and from the form of types, as described; the same consisting, first, of the alternator g^2; second, the lever or arm, or arms, W^1 W^1, their rocking-shaft Z^1, and roller i^2, connected with the alternator and frisket-carriage; third, the rocking shaft c^2, arm d^2, connecting-rod e^2, and the crank h, or any mechanical equivalent or equivalents therefor; the whole being made, arranged, and operated together, substantially in the manner as herein before specified.

3d. And in combination with the alternator q^5 and pitman w^5, I claim the slide d^6, operated by the treadle in the manner substantially as described; whereby the pressman, at any time while the said alternator is in motion, is enabled to prevent it from being thrown or moved against the toggles (or rollers thereof) sufficiently to straighten or move the said toggles into line with each other, and thereby produce an impression from the form of types.

4th. I also claim the combination of mechanism (or an equivalent or equivalents) by which the nippers, seen in figure 1, are operated; the same consisting of the rod s^3 and its arm a^4, the springs t^3, the catches w^3 and v^3, and the grooves b^4, and the stops e^4 d^4, and the rotating cam named in the description.

5th. Also, the combination of the said nippers with the frisket-carriage, operated as above set forth; the same being for the purposes and constructed substantially as aforesaid.

6th. I also claim the mechanical combination (or an equivalent or equivalents) constituting the means for making or obtaining register; the same consisting of the movable stocks x^2, the points n^2, and the levers v^2, w^2, and e^3, and mechanism consisting of the cams i and g^3.

and the spring h^3 which operates them, the same being applied and constructed and operating substantially as hereinbefore described.

7th. I also claim the manner above described of changing the position of the register points so as to range with each other across the feed-board and the sheet, either in one direction or the other, in order to enable the pressman to turn the sheet and point its second side in another direction; all as set forth.

8th. I also claim the method above described of securing greater certainty of accurate register; that is to say, causing the nippers to rest from their horizontal motion (or from that motion by which they are carried towards the sheets of paper) while they are being closed on the said sheets of paper, and while the carriage or part from which they receive said motion continues its movement, substantially in the manner set forth.

9th. I also claim the above described manner of constructing the nippers; that is to say, the making the upper blades somewhat longer than the lower blades thereof, whereby the said upper blades are made to project beyond the said lower blades, in order that they, the said upper blades, may be pressed down upon the edge of the sheet of paper on the tympan or feed-board, so as to hold the paper still thereon, while the said lower blades are being brought up to secure said paper in the nippers; the same being of importance for the security of good register.

10th. And for the additional security of good register, I claim withdrawing the register points from the paper after it has been seized by the nippers, but previously to its being started from the place in which it has been adjusted or pointed; the same being necessary to secure good register and prevent any enlargement of the point-holes, or tearing of the paper at the point-holes made through it.

11th. And I also claim altering the width of the tympan to make it correspond with sheets of various widths, of nippers of various lengths, while the register points in the meantime are still preserved in their central position.

12th. I also claim the delivering bands W^7 and A^8, and also the delivering rollers U^7, V^7, Y^7 and Z^7, operating substantially as aforesaid, or mechanical equivalents for either or all of them, in combination with the frisket, or any equivalent therefor; the same being for the purpose of receiving a sheet of paper from said frisket and delivering it upon a fly-frame, or any other contrivance destined to receive it.

13th. I also claim the combination of a bellows, or other equivalent, with the frisket, or support of the sheet of paper, and the two series of receiving and delivering endless-bands or tapes, the same being arranged and made to operate substantially in the manner as specified.

14th. I also claim the delivering fly-frame, or its equivalent, in combination with the delivering bands W^7 and A^8.

15th. And also with the delivering rollers U^7 V^7 Y^7 and Z^7, and also with the shaft e^8 and the pulleys b^8 b^8 b^8 b^8, &c., operating substantially as aforesaid, or any equivalent or equivalents for either or all of them.

16th. I also claim the employment of the fly, or its equivalent, for receiving and piling the sheets.

17th. I also claim the arranging and operating the fly-frame in such manner that its motions may be in directions perpendicular, or thereabouts, to the side of the press; the same enabling me to deposite the unprinted paper in a heap close to or directly by the side of the pressman, and thus afford him the opportunity of more readily examining each sheet after it is printed than he would enjoy if the fly-frame operated in any other direction.

18th. I also claim the manner set forth of operating the nippers, and which is also exhibited in figures 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, and 23, and hereinbefore described.

19th. I also claim the combination constituting the mechanism employed to convey the printed sheets from the delivering rollers and bands (or an equivalent) to the pile or table provided to receive them; the same consisting, first, of the delivering fly-frame, or a substitute operating substantially the same; second, the mechanism (or a substitute therefor, operating substantially the same,) employed to give said fly its proper motions and intervals of rest, the same consisting of the cam z^8, the lever a^9, the rack b^9, the pinion p^8, and the spring o^8; and, third, the devices (or substitutes operating substantially the same) employed for the adjustment and government of the motions of said fly and its intervals of rest, with respect to extent and time; the same being done by making the cam Z^8, the spring o^8, and the fulcrum of the lever a^9 adjustable.

20th. I also claim the manner of constructing and arranging the delivering fly-frame, by which it may be depressed below the bands, rollers, and pulleys, by means of which the sheets of paper are successively presented to the action of the said fly in such manner that said fly shall not itself obstruct its reception of the said sheets preparatory to delivering them on the pile.

21st. I also claim the detached or independent manner of arranging the delivering bands, pulleys, and rollers, by which I am enabled to give any required velocity to them or any of them, and in that way to govern the time of the final delivery of the sheets, successively with reference to the times of action of other parts of the machine, and thus to gain a saving of time which could not be gained were the velocities of said bands, rollers, and pulleys arbitrarily governed by the motion of the frisket or frisket-carriage, or any other part of a flat surface press, or by the velocity of the cylinder or any other part of a cylinder press, the same being done by altering the relative diameters of the pulleys k^8 and l^8, or any equivalent method.

22d. I also claim the constructing one or more of the distribution cylinders so as to make it capable of receiving and containing steam or hot or cold water, by which its temperature, as well as that of the ink upon it, and which is to be imparted to the rollers, may be governed

ISAAC ADAMS.

Letters Patent No. 2,759.—*Improvements in the manner of constructing Locomotive Steam Engines, by which they adapt themselves to the curve sand undulations of the road.*

I claim principally the manner in which I connect the four truck-wheels with each other, so as to enable them to vibrate and to adapt themselves to the curves and undulations of the road, by the combined action of the pins or pivots A, the vibrating bars C, with the box B, and the boxes and plummer blocks of the axles, with their cylindrical fittings; the whole being constructed, combined, and arranged substantially in the manner herein set forth, the respective parts co-operating with each other upon the principle or in the manner above made known and described.

I do not intend to claim, nor do I claim, either of the parts above described, taken separately or individually.

MATTHIAS W. BALDWIN.

Letters Patent No. 2,768.—*Improvement in the Construction of the Brick Press.*

I claim the segment slides c^5 acted on by springs, in combination with the platen and hopper, constructed and arranged as herein set forth.

I further claim the combination of the carriage E, suspended at its rear end, with the connecting rods e^4 and shaft e^5 for freeing the machine from obstructions, substantially as before specified.

Lastly, I claim the construction of the carriage E so as to free itself from dirt; that is to say, the pivots and studs for steadying the carriage, the slatted top and railway set off from the carriage, &c., and in combination therewith the movable carriage F, constructed and operated as herein described.

ALFRED HALL

Letters Patent No. 2,776.—*Improvement in Window-Blind Hinges and Fastenings.*

I claim the connecting the window-blind fastening with the hinge, either by the use of the latch, made as a double fastening, that is, to fasten the blind both when closed and when open, or when made to fasten the blind when open only; or by the use of the hook on the back of the hinge, for fastening the blind open, as the same are above set forth and described.

WILLIAM BAKER.

Letters Patent No. 9,525.—*Improvement in Printing Presses.*

I claim: 1st. The application of notches or grooves, and beads or projections, on the shafts of type, tapered to the radii of a circle for the

purpose of locking said type together, and securing it in place on a cylinder, substantially as described and shown.

2d. The mode described and shown of forming column lines, rules, rings, and blocking, so that they are adapted to the cylinder and to the type, with notches and projections to lock into the type and cylinders, substantially as described and shown.

3d. The mode described and shown of constructing the type-cylinder with heads, the one head having a bead or projection, the other with a notch or groove around in its face near the edge, for the purpose of receiving and securing the type or other parts composed on the surface of said cylinders, such heads being fitted with means to compress and hold the type and parts in a cylindrical form for the purpose of printing by a rotary movement, substantially as described and shown.

4th. The mode of constructing the compositors' stick in the form of a part of a cylinder with flanches, having beads or grooves, so as to hold the type in segments of a circle while composing or setting up, preparatory to the placing of the same in the galley or proof-cylinder, substantially as described and shown.

5th. The mode of constructing and applying the galley or proof-cylinder so that it shall receive and hold the type in circular form from the composing stick, and retain the type and the needful parts in place for correction and proof, and for transferring the same to the type-cylinder; the parts being constructed and operating substantially as described and shown.

6th. The mode of forming and constructing the type-holder or grab to enclose, take hold of, and securely lift, a mass of type from the galley or proof-cylinder, and transfer the mass either to the cylinder or to a stack for future use, or to reverse or vary either of these operations as may be needed; the instrument being constructed and operating in the manner and with the effects described and shown.

7th. The application and arrangement of the pulleys, bands, and guide plates, so placed and moving so as to carry the sheet of paper from the press in lines diverging vertically, and conveying horizontally under, between, and over the guide plates, thereby presenting the paper in a folded form to the compressing rollers, substantially in the manner and with the effects described and shown.

8th. The application of the press rollers to compress the folded paper and lead that out of the folding apparatus, and the combination of the standing roller *w*, revolving shear *y*, standing shear *x*, valve *z*, and cam 42, to effect the cutting of the folded paper as it issues from the rollers, and guide the fresh cut edge clear of the standing shear; the whole of the parts being constructed, arranged, combined, and operating substantially as described and shown.

JEPTHA A. WILKINSON.

Letters Patent No. 2,797.—*Improvements in the Steering Apparatus for Vessels.*

We claim the machine or combination consisting of the cog-wheel on the rudder head, the sliding racks with the hollow nuts and screws, the

shaft with the right-and-left-hands crews, and the steering wheel; the whole combined as before described and for the purpose aforesaid.

GEO. W. ROBINSON.
E. B. ROBINSON.

Letters Patent No. 2,801.—*Improvement in Pumps and Fire Engines.*

We claim the application of air chambers B B to the supply pipe of pumps or engines, together with the manner in which the pump is cast, as herein before described.

BENJAMIN T. BABBITT.
SHULER C. HIGBEE.
PETER W. PLANTZ.

Letters Patent No. 2,886; Re-issue No. 201; Re-issue No. 401.—*Improvement in Door-Locks.*

I claim making the cases of door-locks and latches doubled-faced, or so finished that either side may be used for the outside, in order that the same lock or cased fastening may answer for a right or left hand door, substantially as described.

I also claim the peculiar construction and double action (upon an inclined and horizontal track or way) of the locking-car B, as herein before described, and the combination of the locking-car B and safety-cars G G^2 with one another, and with the connecting or vibrating-bar and bolt A, as within described, so as to fasten the bolt C securely and prevent its being picked.

I also claim so constructing the bolt, as hereinbefore described, that by simply turning it over in the lock case, it is adapted to a right or left hand door

JOHN P. SHERWOOD.

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